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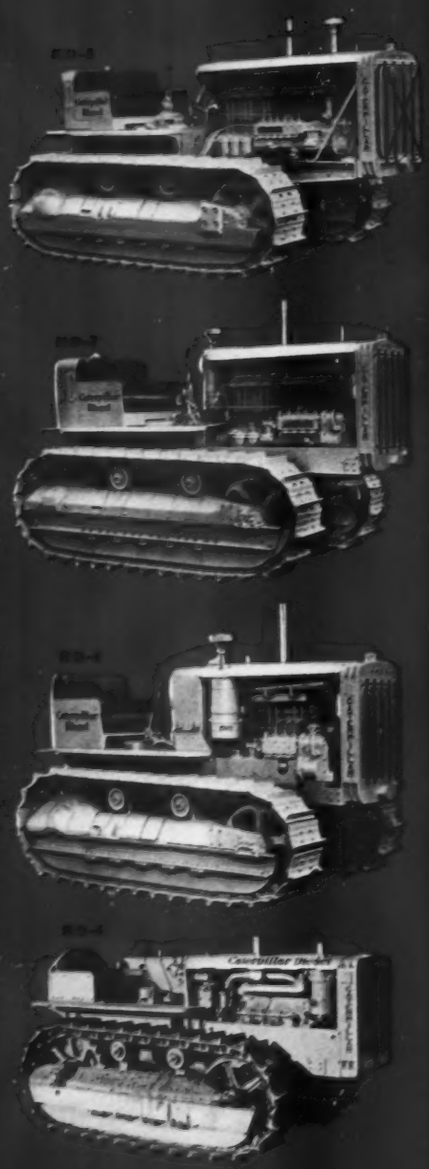

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New Mexico's Late Wells Outstanding

By JAMES McINTYRE

FLOWING NATURALLY through tubing, two wells in Lea County, New Mexico, started in the past week with a combined initial production of 8,384 barrels per day, much less than they could have done through casing, further emphasizing the importance of that area as a petroleum reserve. The county with an enormous potential production is kept down to an output around 55,000 barrels per day, a small percentage of what the field can do.

A substantial reduction in California production was led by the Kettleman Hills field, in which output was voluntarily reduced below 100,000 barrels per day.

The most important wildcat test in Oklahoma in recent days, appears to be a failure. It is a deep test on the Centrahoma structure in Coal County, and this week developed salt water supposedly from the McLish series. Oklahoma City shared in the rays of the spotlight by reason of the completion of a 13,000-barrel well on the northern edge of the city.

Production 2,863,764
Decrease 15,728

New wells were added to the Rodessa area in North Louisiana, but a third well in section 21-13-14 shows considerable water and may indicate the nearness of the edge in that direction.

The newest pool in Kansas was opened in the southwest corner of Russell County by the Central Petroleum Co. with an 884-barrel well. The Hugoton gas field was extended into Grant County by a 10,000,000-foot gas producer.

The Plymouth field in San Patricio County, in the Southwest Texas division, was extended 2 miles southerly. The Gulf Coast-al division went through an uneventful week, which is out of the ordinary.

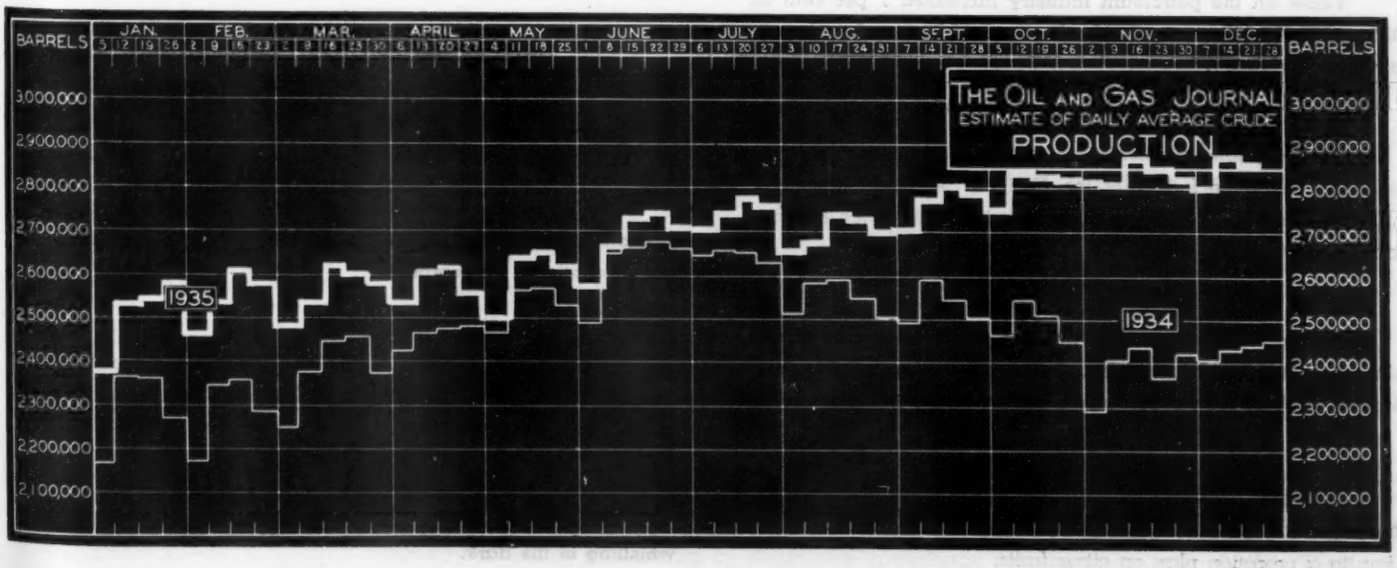
Daily Average Production for Week

	Dec. 21 1935	Dec. 14 1935	Dec. 22 1934
Oklahoma City	127,200	137,175	162,075
Seminole-St. Louis	93,775	93,575	87,100
Remainder of State	272,125	273,775	232,360
Total Oklahoma	493,100	504,525	481,535
East Texas	448,872	450,500	420,630
West Texas	160,346	159,138	135,896
North Central Texas	81,057	81,450	90,765
Texas Panhandle	65,436	62,603	59,224
East Central Texas	49,555	48,451	47,855
Gulf Coast—Texas	211,437	208,850	170,237
Southwest Texas	65,422	65,198	57,022
Total State of Texas	1,082,125	1,076,190	981,629
North Louisiana	39,170	38,155	23,665
Gulf Coast—Louisiana	128,357	127,302	84,726
Total Louisiana	167,527	165,457	108,391
Santa Fe Springs	54,000	54,750	38,900
Long Beach	76,500	76,350	64,500
Mountain View	33,500	37,300	10,000
Kettleman Hills	99,750	116,000	59,400
Remainder of State	413,250	410,100	314,200
Total California	677,000	694,500	487,000
Kansas	148,250	147,100	131,800
Arkansas	29,495	29,480	32,935
Eastern Fields	106,000	104,500	101,500
Michigan	46,047	45,600	28,435
Rocky Mountain area	114,220	112,140	94,000
Total United States	2,863,764	2,879,492	2,447,225

Crude Oil Stocks in U. S.

(BUREAU OF MINES ESTIMATES)

Week ending Dec. 7, 1935	299,132,000 bbls.
Week ending Nov. 30, 1935	299,222,000 bbls.
Week ending Dec. 8, 1934	325,970,000 bbls.



Representatives of several crude oil purchasing companies were at the well near the governor's mansion at Oklahoma City at 5 a.m., when the well came in, trying to get the connection. And the same scramble for connections is on in Texas and Kansas.

Operators in the old Bradford field are looking for new worlds to conquer. They have invaded the Oklahoma and Kansas fields and now the central Michigan fields are included in their outside operations, while holding their properties at home.

The heating oil market, considered by many, says the New Jersey Company Lamp, to be the next great field of expansion for the petroleum industry, continues to grow at a healthy rate, with a 13 per cent increase in consumption of gas oil and distillate during 1935. With fuel oil total will be 378,000,000 barrels.

With a 13,000-barrel well offsetting the governor's mansion in Oklahoma City and close to the state capitol grounds, state officials are studying directional drilling methods, used frequently in the California fields.

The Gulf Coast refining area was interested in announcement by the Pan American Refining Corporation that the capacity of its 30,000-barrel Texas City plant would be doubled, actual work to start immediately.

Many California operators are convinced a 10-cent advance in crude oil prices will be announced in that state soon.

Colorado is a promising but little prospected oil region. Baca County is to have a test on a 40,000-acre block and the Ohio Oil Company, on the Bell Rock structure, and the California Company, on the Round Butte structure, will drill tests.

Taxes on the petroleum industry increased 7 per cent in 1935, or $79,000,000, a sum that by itself would be a serious handicap to any industry.

A good publicity man for a crude oil producing company might capitalize the failure of the Carter's Centrahoma well to find production. The crude situation has tightened since the outlook in the McAlester basin does not look so promising.

The Iraq government has decided to undertake the establishment of a refinery in that country and the prime minister announces an American expert has been appointed to supervise it.

California may be more inclined to the interstate compact when it notes that its grapefruit growers want Florida and Texas to join in a proration plan on citrus fruits.

When discussing big oil fields don't overlook Lea County, New Mexico, where wells from 5,000 to 15,000 barrels a day in initial production are not unusual.

Gasoline stocks in the Mid-Continent area have increased about 20 per cent since the low in October, but fortunately, practically all such storage is in the hands of strong companies.

Receipts from the federal taxes on gasoline and motor oil continue to increase, the total for the first eleven months being $8,000,000 more than last year.

Over 21,720 miles of roads and streets were improved in the United States during the year, according to federal reports. The current improvement program at the close of the year involved an additional 30,238 miles. And the oil industry will be ready to supply motor fuel and oil on all of them.

The March meeting of the Interstate Compact Commission will also be held on Friday the thirteenth. Advocates of federal control will soon begin to dislike that number.

The refined-oil market faced 1935 with misgiving. It faces 1936 with concrete accomplishment toward stabilization recorded.

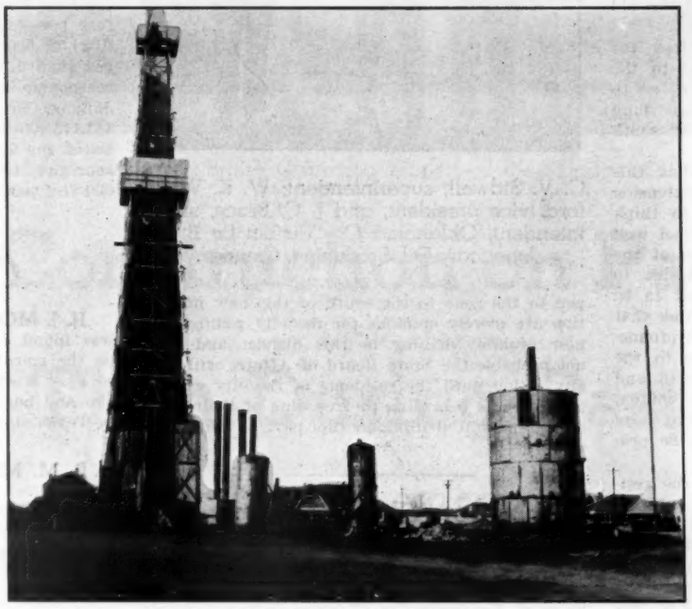
The first pump serving "coal-petrol" has been opened in London. The British air force is reported to have used 2,000 tons during the year and pumps are to be erected throughout Britain.

It having been remarked that the oil producing countries are all for peace some one immediately offers a suggestion for an international oil compact.

Governmental expenditures and taxes will be considered by the executive committee of the Mid-Continent Oil and Gas Association in Tulsa Friday.

And this year the holiday greetings sound real, not like whistling in the dark.

Wilcox Sand Zone Found Near State's Capitol



British American Oil Producing Company No. 1 Piersol well, north extension to Oklahoma City Wilcox sand zone

By L. G. E. BIGNELL

With a roar that echoed through the Mansion of the Governor of Oklahoma and startled the nesting sparrows under the eaves of the state capitol building in Oklahoma City the British American Oil Producing Co. No. 1 Piersol well came in about 5 o'clock on the morning of December 20 flowing about 500 bbls. of oil per hour and making approximately 20,000,000 feet of gas per day. This well is the first actual completion in the new north extension to the Wilcox sand zone of the Oklahoma City field. It is located about 675 feet northeast of the governor's residence and is within 2,500 feet of the east wing of the state capitol building.

This well is located in the SE SE SE section 23-12-3w, and has a surface elevation of 1,233 feet and found the top of the Wilcox sand at 6,342 feet. Just above the Wilcox sand a section of lime was found at the base of the Pennsylvanian formation. There was a show of heavy oil in this lime but not sufficient to make a commercial producer so it was cased off with the string of 9⅝-inch casing set and cemented at 6,340 feet. The well was drilled in using the pressure control method and the upper 10 feet of Wilcox sand contained only gas. The bottom of the hole is reported at 6,362 feet and now that potential test has been taken it is planned to deepen this well to take in more of the producing formation.

On the four-hour potential test taken on the morning of December 20 the well is rated at a capacity of 13,647 bbls. daily and the gas flow estimated at 18,500,000 feet. Pressure at well head was about 500 pounds during the drilling in period and the pressure in the formation is approximately 600 pounds per square inch.

The British American Oil Producing Co. has six other wells drilling in this area and three of them are on the sand. Four other wells nearby are also on the sand so it is probable several new completions will be reported this week.

British American No. 1 Mary Green two locations east of No. 1 Piersol was drilled into the Wilcox sand early in October and tested about 250 bbls. per hour when the hole was 32 feet in the producing formation. The Wilcox sand on this location was found at 6,328 feet with surface elevation 1,212 feet. The hole was drilled to a total depth of 6,360 feet and in swabbing the well later the swab was lost and after spending several weeks fishing for it two windows were cut in the 7-inch casing. The first attempt to get around the swab through a window cut at 6,225 to 6,237 feet was unsuccessful and a second whipstock was set and other window cut at 6,202 to 6,213 feet and through this window about 150 feet of 5½-inch O. D. casing was set with packer between the inside of the 7-inch and outside of the upper end of the 5½-inch casing. At last report this well was being completed again using the pressure control method.

Between British American No. 1 Mary Green and No. 1 Piersol is located No. 2 Mary Green and casing has been set in this well at 6,322 feet and cemented. The operations are now shut down waiting for cement to set and it will be drilled in using pressure control method within the next few days.

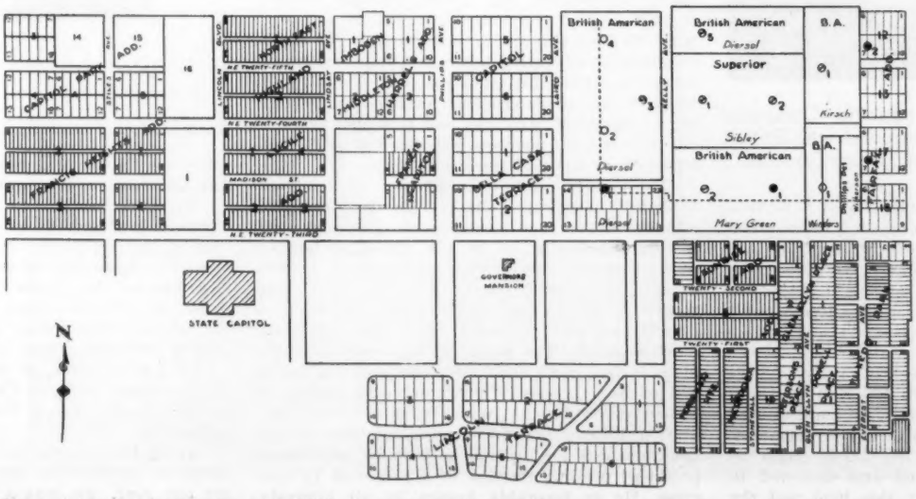
To the northeast of No. 1 Piersol is located No. 3 Piersol, another British American well with a string of 9⅝-inch casing set at 6,341 feet. Surface elevation at this well is 1,225 feet making the top of the Wilcox sand about 5,116 feet below sea level. In the south end of the Wilcox sand zone the original water level was —5,400 feet and if this datum is taken for this new area all of these wells should have thick sections of Wilcox sand above water.

Immediately north of the Mary Green lease the Superior Oil Co. has two wells on the sand. Their No. 1 Sibley ran a string of 9⅝-inch casing to 6,329 feet, top of the Wilcox sand and No. 2 Sibley is shut down with casing set at 6,321 feet waiting for cement to set. These two wells have surface elevations of 1,221 and 1,214 feet respectively or the top of the Wilcox sand has been found at 5,108 and 5,107 feet respectively. These wells will be drilled in using the pressure control method as soon as cement has hardened.

The two first wells to be drilled in this area are No. 1 and No. 2 Bracht of Fairfax Oil Co. and they are located to the east of the Mary Green lease as shown on the accompanying map. No. 1 Bracht is shut down awaiting orders at 6,455 feet after finding the top of the Wilcox sand at 6,345 feet. Surface elevation at this well is 1,233 feet and the top of the producing formation is therefore 5,112 feet below sea level datum. This well is a producer from the Wilcox sand and is believed by some to be close to the fault along the east side of the Oklahoma City field. Others seem to think drilling mud has plugged the pores of the sand and prevented the well producing. No potential test has yet been taken.

Fairfax Oil Co. No. 2 Bracht north of No. 1 Bracht has a total depth of 6,500 feet and has taken a potential test with flow rating as follows:

First hour, 133.87 bbls.; second hour 57.75 bbls.; third hour 99.75 bbls., and fourth hour 189 bbls. This well was produced by gas lift for it would not flow natural.



Plat of land in vicinity of British American Oil Producing Company No. 1 Piersol well. Boundary of drilling zone shown by dotted line in northeast corner

In addition to these completions and wells ready to drill in British American No. 5 Piersol is drilling at about 5,884 feet; their No. 1 Kirsch is drilling at 3,840 feet; and their No. 1 Winders east offset to No 1 Mary Green has cellar and derrick corners completed ready for derrick and starting hole. The east offset to No. 1 Winders is Fairfax Oil Co. No. 1 Bracht.

Directly north of British American No. 1 Piersol there are two other locations No. 2 and No. 4 Piersol to be drilled later. This makes a total of 13 locations in this new era of which 3 are completed as oil wells, 5 are on the top of the Wilcox sand

about ready to drill and the others drilling or locations to be drilled soon.

On the accompanying map the west and south boundaries of the drilling zone is indicated by a dash line with the British American No. 1 Piersol well in the extreme southwestern corner. The area to the south of this zone is within the limits of Oklahoma City and now restricted for drilling purposes for a distance of about 1½ miles or to the north boundaries of the recently extended Wilcox zone in the north end of the old field.

With this production discovered across the street from state property and adjacent to the state capitol the question naturally arises as to what will be done about drilling on state land and the opening of the residential district south of the new area.

There are many opinions as to what this new completion proves regarding the extension of the Wilcox sand zone. Some seem to think this sand where found in the No. 1 Piersol well is a finger or stringer on the west side of the fault and may not be of sufficient width to extend the Wilcox sand far enough west to be under the state capitol. Others seem to think that the west edge of the known Wilcox sand producing section in the city limits 1½ miles to the south should be extended about due north and it will all be found productive. If this opinion is right the state capitol and some of the state land just west of the capitol should all be productive.

To settle the question about opening the residential section for drilling purposes it will be necessary for the Oklahoma City council to hold a special election. If the majority of the property owners in this area favor leasing their land for drilling purposes it seems almost certain the State Board of Affairs, which has control of this state land, will move to protect the oil under the state property.

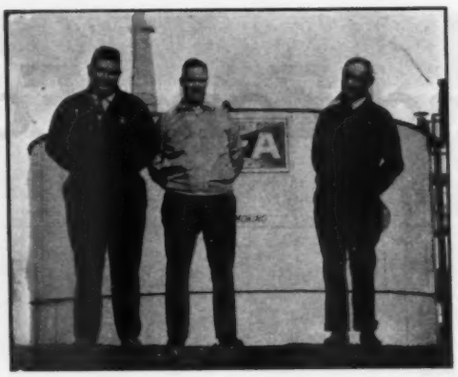
What attitude may be taken by the State Board of Affairs as to the method of protecting state

British American Oil Producing Company No. 2 Mary Green in foreground with British American No. 1 Piersol in background

property from drainage is unknown at this time. Some suggestions have been made to the effect oil companies acquire leases on the state land but drill on the land adjacent to it and then make adjustment with the state for the payment of a portion of the oil recovered by these offset wells that is estimated to have come from under state land.

In California wells located on the shore of the Pacific Ocean have been deflected to reach oil producing formations under tidewater and therefore belonging to the state. The state collects royalty on this production. Wells might be located adjacent to state land and deflected to reach the Wilcox sand under this land and the state share in the production.

However, all conjectures as to what may happen in the zone to the south of this new production are merely opinions for the city zoning laws now prohibit drilling in this district and it is not probable the State Board of Affairs will take any action until the residents of the city express their desires regarding the rezoning of their property to permit drilling in this part of Oklahoma City.



C. V. Sidwell, superintendent; W. K. Whiteford, vice president, and J. C. Bruce, superintendent, Oklahoma City district for British American Oil Producing Company

No Major Changes Expected In Venezuelan Conditions

The death of Gen. Juan Vicente Gomez, dictator of Venezuela for 27 years, will not result in important changes in the attitude of the government toward the oil business in that country according to representative opinions of local companies including those with substantial investments there. It is anticipated that General Gomez who was 78 years old and whose death has been anticipated for some time due to ill health, will be succeeded in power by close associates in sympathy with the oil policies established by the general when oil was discovered in the Lake Maracaibo region in 1917.

It is commonly conceded General Gomez's plan of controlling development of oil resources in Venezuela has worked to the best interests of both the private oil interests involved and the country. His policy permitted private development in large tracts with a minimum of interference in the routine operations. He collected substantial royalty payments on the production of the crude and revenue from granting of concessions was an important factor in the government's revenue. Due largely to the revenue derived from oil, Venezuela has occupied an unusual financial position among the nations. The country has no foreign debts with a treasury surplus at this time which is three times the domestic debt of approximately $10,000,000. Due to his friendly attitude it was possible for oil companies to cooperate with the government in many matters covering employment of native labor and improvement of living conditions for employes. For several years he used part of government revenue in the building of improved highways and this also aided oil development. Oil companies cooperated in the construction of some of these highways.

The present crude oil production of Venezuela is slightly in excess of 400,000 bbls. daily and 1935 will establish a new yearly peak. The companies having practically all of the present crude oil production are subsidiaries of Standard of New Jersey, Shell, Gulf Oil Corp. and British Controlled Oilfields Ltd. Refining in Venezuela is largely confined to small plants supplying the local demand. The bulk of the refining takes place at two large Shell refineries and one Standard of New Jersey refinery adjoining islands of Netherlands (Dutch) West Indies.

Gen. Eleazar Lopez Contreras, minister of war, has been selected by the cabinet as provisional president pending election of a president by congress. He is favorably known by oil interests. Gen. Vincencio Perez Soto, who for several years, has been governor of the Zulia, the rich oil producing state and who also has had a great deal to do with the oil policies of the government, has been mentioned as a successor of General Gomez.

Texas Gas Allowable

AUSTIN, Tex., Dec. 23.—The Railroad Commission has issued an order announcing that the combined open-flow capacities of the gas wells in the East Panhandle sweet gas field is 6,938,169,000 feet per day; West Panhandle sweet gas field, 8,324,321,000 feet per day; and Panhandle sour gas field 2,128,328,000 feet per day, and that the reasonable market demand for sweet gas during January in East Panhandle sweet gas field is 181,174,000 feet per day; in the West Panhandle sweet gas field 608,552,000 feet per day; and for sour gas in the Panhandle sour gas field 520,496,000 feet per day.

OBITUARY

H. J. MOOK, president of Mook-Texas Oil Co., was found dead in his bed in Fort Worth, Tex., on the morning of December 20. Mr. Mook went to Fort Worth from Pennsylvania about 15 years ago and has been an active independent operator in Texas since.

P. M. MISKELL, 59, general manager of the refining and marketing department of the Empire Companies, died Wednesday morning at his home in Tulsa. He had been ill for several years and had undergone several operations at Baltimore and Philadelphia hospitals. A severe cold contracted on the train en route home developed an infection

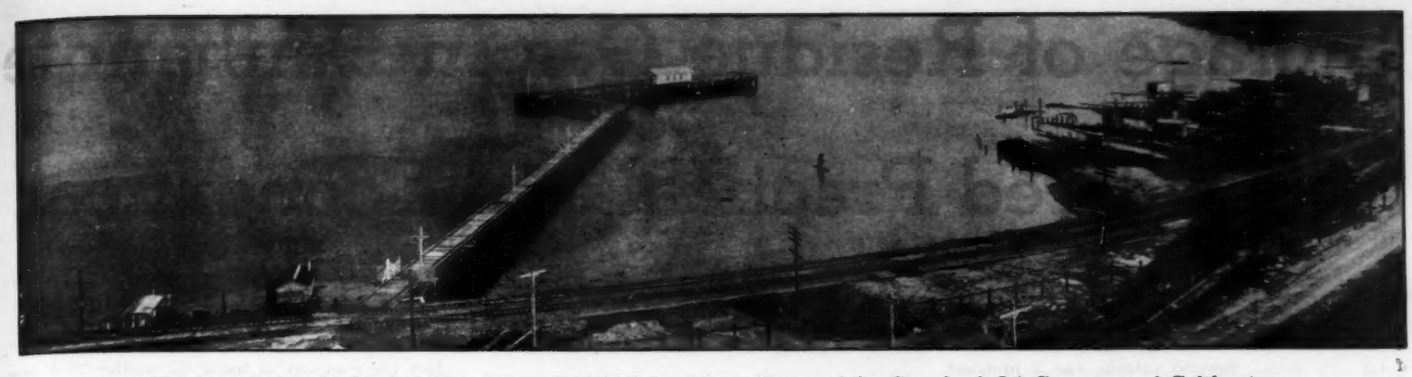
P. M. MISKELL

that resulted in a glandular swelling that halted his breathing and brought instant death.

Mr. Miskell had been in the oil business for 28 years and a resident of Tulsa for 18 years. He was a native of Dublin, Ireland. The family moved to Kane, Pa., where he attended school and then entered the service of the Pennsylvania Railroad. In 1903 he joined the Kane Bank & Trust Co. and in 1907 became partner of T. N. Barnsdall in laying pipe lines in Kansas and Oklahoma.

On June 1, 1916, he became superintendent of the American Refining Co. when it became a part of the Empire Gas & Fuel Co., a Cities Service subsidiary.

An active member of the Western Petroleum Refiners Association, Mr. Miskell was president for one year. He was a life-long member of the National Petroleum Association and a director of the American Petroleum Institute.



Newly completed wharf at Vancouver, British Columbia, refinery of the Standard Oil Company of California

Refinery Construction on Pacific Coast Higher Than During Past Decade

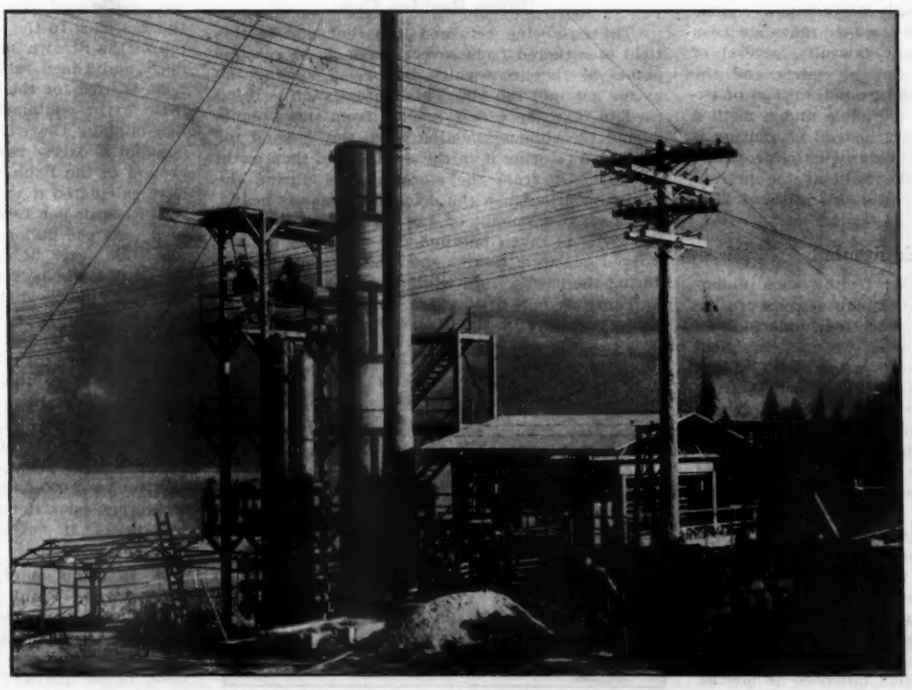
By L. P. STOCKMAN

LOS ANGELES, Calif., Dec. 23.—Refinery construction on the Pacific Coast is substantially higher than during the past decade. New refineries are under construction at Norwalk, Calif., and in Vancouver, B. C., aggregating approximately $3,000,000. Upon the Wells lease in the Mountain View field of Kern County, the El Tejon Refining Co. recently completed a skimming plant which is at present charging 2,000 bbls. of crude oil to stills and producing the normal recovery of gasoline, gas oil, fuel oil and distillate. Earlier this year, the Shell completed a polymerization unit at its Martinez refinery and the Standard Oil Co. has already started construction of a polymerization and hydrogenation unit at its Richmond refinery located in the San Francisco Bay region. The latter has appropriated approximately $600,000 to cover construction costs of the new polymerization unit and the hydrogenation plant in which the company's research staff has developed refinements that appear to be of great value.

In the Norwalk area of Los Angeles Basin, the Wilshire Oil Co. is erecting a new modern refinery and a set of Dubbs cracking units which upon completion will permit this plant to produce approximately 10,000 bbls. of straightrun gasoline and about 6,000 bbls. of cracked gasoline daily. This new plant, scheduled for completion on or before April 1, 1936, will replace the company's existing facilities at Vernon in Los Angeles Basin. Storage tanks and a large part of existing refinery equipment at the present Vernon plant will be salvaged and erected on the new site at Norwalk where the company erected a large tank farm a few years ago.

Early in June, 1935, the Standard Oil Co. completed a combination atmospheric and vacuum distillation unit at its Richmond refinery which proved capable of feeding 21,000 bbls. per day of selected crude oil and which produces a total of 11 closely fractionated streams varying from a light gasoline to a heavy lubricating distillate. In addition the unit is producing asphalt bottoms and a road oil conforming with the most stringent specifications. A special rerun unit for refining lubricating oils was also completed and this unit which has a feed capacity of 3,500 bbls. per day produces four streams of high quality lubricating distillate. The cost of these new units approximated slightly more than $1,000,000 and required four months to complete. Supplementing these units, the Standard subsequently completed construction of a selective solvent plant for the treatment of lubricating oil. This plant, finished late in 1935, has a rated capacity of 2,200 bbls., based on the production of finished oil. In addition to the treating facilities, the plant has a complete recovery system for minimizing the loss of high priced solvents and to eliminate the concentration of explosive vapors. Part of this plant was constructed by company employes although most of the construction work was done on a contract basis.

In order to round out the picture the Standard Oil Co. modernized its pipe line and wharf facilities at the Richmond and El Segundo refineries and installed an additional loading submarine pipe line at Estero, the western terminal for its San Joaquin Basin pipe line system. Late in 1934, the company began the construction of an additional pipe line from Rio Bravo and this work was completed early in 1935. In order to facilitate the movement of oil and provide greater flexibility the company also erected 500,000 bbls. of steel tanks at Rio Bravo and an additional amount at the Estero tank farm. Construction work on the Standard's new refinery at Vancouver, British Columbia, is proceeding at a rapid pace and this new plant should be put in actual operation along about May 1, 1936. Several new tanks have already been erected and the new wharf has been finished. Within another few weeks the loading lines from the end of the wharf to the tank farm will be welded and ready for actual operation. This plant will operate on California crude oil and upon completion there will be three complete refineries in the area immediately adjacent to Vancouver. The Imperial Oil Co. erected the first refinery in this section and about 18 months ago the Shell put a newly constructed plant in operation. Home Oil Co. and Hiway Oil Co. have small skimming plants.



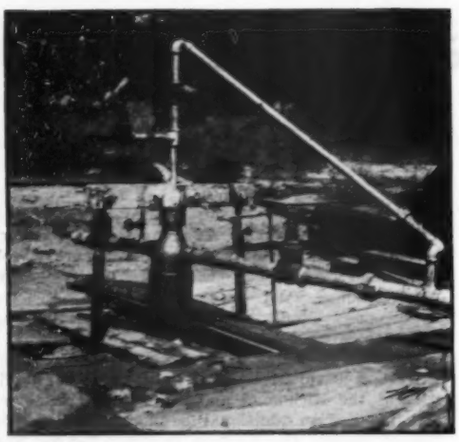
Distillation unit being built at the Standard Oil Company of California new refinery in Vancouver, British Columbia, Canada

Storage of Residue Gas in Panhandle Considered Practical and Economical

By L. E. BREDBERG

The presentation of facts and figures by engineers to support their contention that gas can be stored economically in the producing formation, after having been stripped of gasoline, is causing considerable comment and study. Such a procedure would solve a problem that has brought about a great deal of discussion and legal proceedings against the contended waste of this natural resource in Texas Panhandle. A suggested plan of storage is described.

Several months ago a proposal was offered at a state gas hearing in Amarillo for the return of excess residue gas to the formation in the Panhandle field as a solution to the great gas wastage problem confronting the state of Texas, land owners and gas producers in that section of the state. At that time many took exception to the facts and figures issued, thinking such a method of storing gas would be economically impossible. Facts and figures were offered by engineers to back up their statements, and tests have been run by the U. S. Bureau of Mines and the Lone Star Gas Co. to prove such statements and such a plan was not only feasible but economical and would solve the problem that has been causing comment and many lawsuits, several of which have entered the federal courts and the state Supreme Court. Underground storage of excess gas has been proven workable and a method of conserving the commodity instead of venting it into the air as several casinghead gasoline plants are doing in the Panhandle field at the present time at a conservatively estimated rate of 750,000,000 feet per day.



Intake well in the Cheaney field equipped for taking excess residue gas

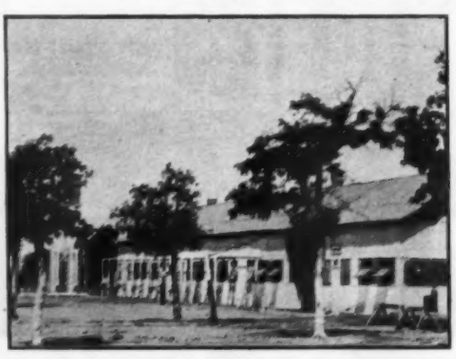
Cheaney Equipment

The Lone Star Gas Co., feeling such underground storage would prove a plan of conservation such as its engineers had suggested, undertook an experiment in the old depleted Cheaney gas field in Eastland County, about 6 miles south of the town of Ranger. On June 1 this year it started returning around 5,000,000 feet of gas per day to intake wells in that field through its Cheaney compressor station in which there are seven engines, only three of which, however, were needed in this work. They are 160 horsepower each. The plant shut down the first of October with 1,000,000,000 feet of dry sweet gas having been returned to the 3,000-foot sand from which the wells are producing. Fifteen intake wells were used for the work. The field covers an area of about 2,000 acres and has been producing since 1924. When the wells were first completed they had a pressure from 1,230 to 1,300 pounds each, but since producing 12 years the pressure has fallen to as low as 140 pounds. During the experiment, and at the present time, the pressure in the wells has been increased to 375 pounds as a result of returning the gas to the sand. The discovery well in the field, No. 1 Scott, owned by the company, came in with an initial volume of 12,000,000 feet of gas daily with a pressure of 1,300 pounds. It had dropped to 139 pounds in pressure before the experiment was started, but a recent gauging showed the pressure had increased to 245 pounds.

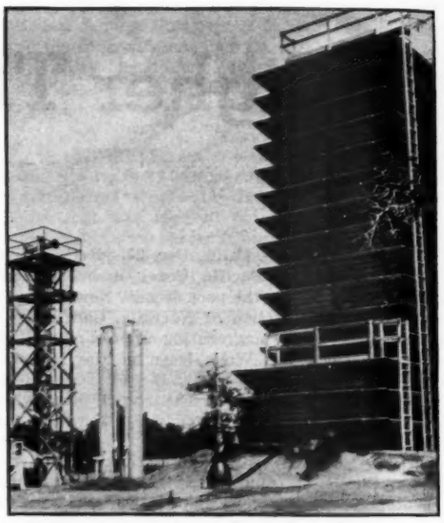
Utilize Residue Gas

The gas being returned into the sand in this field is gathered from several casinghead gasoline plants in the area which had been popping the excess gas into the air. This storage plan is being used to take the excess residue from these plants during the summer months when the demand for gas is low, storing it in the ground and then again producing it from the storage wells during the winter months when the demand for gas is heavy. However, the amount of gas taken from the storage wells is taken out under a proration method worked out from figures showing gas consumption during the past several winters.

There is but little extra expense involved in the experiment in the Cheaney field due to the fact the company is using its regular field compressor station and the men who have been connected with this station and the field, extra help being needed only at intervals. The station was formerly used to compress gas from the field; then connections were changed at the station to return the gas to the reservoir, and are now again reversed to their former position for compressing the gas back out of the field since the billion feet has been stored. Two-inch line is used in carrying the gas back to the wells, 6-inch casing setting on top of the Strawn sand from which the wells produce, and 1-inch tubing, run to the bottom of the hole, is used for the input line into the sand. But little extra equipment and expense is necessary in equipping the wells and leases for storing the gas and if excess residue gas was returned to the ground in the Panhandle gas formation, engineers have calculated it would cost only about one-quarter of a cent per 1,000 feet of gas or from .5 to .7 of a cent per gallon of casinghead gasoline manufactured. Cost of storing the gas in the Panhandle field would be considerably cheaper than storing it in the Cheaney and other fields due to the difference in the gas-bearing formation which is more porous in the Panhandle, therefore offers less resistance to the flow of gas. The abnormally low pressure in those wells also lends itself to underground storage.



Compressor plant used in returning excess residue gas to sand reservoir for storage



Cooling towers and condensers at compressor station in Cheaney plant

The Lone Star Gas Co. has previously stored gas in the old Petrolia gas field in Clay County, North Central Texas, where the wells are producing from a 2,000-foot gas sand, and will increase its storage operations next year, probably in several areas, if sufficient excess residue gas is available in same.

J. H. Dunn, chief production engineer for the company, and Frank L. Chase, vice president and operating manager, were responsible for the successful experiment in the Cheaney field. J. W. Burrage of Ranger, production engineer in the West Texas district; G. H. King, superintendent of the Cheaney compressor plant, and his assistant, F. E. Walker, and a staff of nine men installed and are operating the storage system.

Million Oil Burning Homes Consume Over 50,000,000 Bbls. Annually

By G. HARVEY PORTER
Managing Director, Oil Burner Institute, New York City

The domestic oil burner has arrived. What that means for fuel oil sales, for future oil requirements, is of first importance to the petroleum industry, and therein lies the mutuality of interest between it and the oil burner industry. The latter is manufacturing and selling oil burner appliances; the petroleum industry is supplying the fuel—and both are selling oil heat. The oil burner has reached wide public acceptance. At long-last, perhaps, the petroleum industry has come to recognize the possibilities of this new market for fuel oil.

Domestic oil heating came into being along about 1917 when American engineers met the problem of wartime coal shortage with a practical, mechanically controlled oil burning appliance—since improved and variously modified. In 1921 there were probably less than 13,000 homes with oil burners. Within seven years (1928) the number had increased to over 400,000. The year, 1929, with sales of oil burners totaling close to 120,000 was the banner year, until 1935.

Market for 50,000,000 Barrels

Beginning with 1930 sales began to drop. This reflected the depression and specifically the pinch on home owners and the lack of new building operations. In 1932 a low for the depression years of just short of 80,000 burners was reached. There was a slight improvement in 1933; a better one in 1934, and this year it is estimated that an all-time high record of over 150,000 burners will have been sold. And in the last six years, in spite of the depression, over a half million homes were added to the oil burning list. The annual consumption of oil by the million burners in homes today is estimated at over 50,000,000 bbls.

Striking as is this record of expansion, it denotes no more than the building of a foundation. The potential market, the edifice itself, looms large. But the prospects can be deceptive. The most careful study should be given the many factors entering into this market, and I, for one, do not propose to assume the mantle of a prophet. There are variables too numerous to mention. But I do not hesitate to point out what I might call the "constants."

One of these constants is the oil burner's achievement of public acceptance. In areas where homes must be heated in winter there is real demand for automatic heat. In new homes for families even of moderate income automatic heat is being increasingly installed. Oil heat not only as a comfort for the owner-dweller but as an inducement or requirement for the purchase and rental of homes is a conspicuous trend. Thus public acceptance has the force of public demand.

Another constant—one which I cannot over-emphasize—is that of an adequate oil supply. The American petroleum industry has proven reserves and prospective reserves which enable it to assure the oil burner consumer that all demands will be met far into the future. Only this month Axtell J. Byles, president of the American Petroleum Institute, said that "so far ahead as the mind of man can run there is no possibility of a failure of this supply." Then with this assurance is the additional fact that comparative fuel costs as between coal and oil are not essentially the problem, that it is automatic, dependable, heat the home dweller wants. With these "constant" factors established, what is to stop the domestic oil burner?

I have compared the domestic oil burner industry to the automobile, the radio and the electric refrigerator industries. In doing this I do not intend to convey the impression that the oil burner, if it is entering its boom years as is generally believed, will make the same colossal strides as did those industries when they reached a similar time in their history. But is it not reasonable to expect that with a potential market conservatively estimated at 6,000,000 homes, the annual sales of oil burners from now on will go up by leaps and bounds? Burner manufacturers believe so. And in this event the domestic oil burner will constitute an increasingly important outlet for the products of petroleum.

Steadily increasing fuel oil gallonage, by virtue of oil burner sales, has undoubtedly recently aroused the industry to the potentialities and brought into active play competition for this fuel oil business. Not only does it offer profits from sales, but it affords a balance-wheel for operating costs. When gasoline sales start to decline in the fall, household fuel oil deliveries begin. When fuel oil output falls off in the spring the gasoline up-swing commences. Peak sales of gasoline and domestic fuel oil nicely counterbalance. Of course, oil burner dealers are not satisfied with this summer slack, and great strides are being made in installing automatic oil burning water heaters to take it up, while in certain sections of the country the year-around kitchen ranges are being increasingly equipped with oil burners. Another significant development for summer and year-around consumption of oil in homes is air conditioning to which I will refer more fully later.

A large volume of existing burner installations are conversion burners. This market is increasing and at the same time installations of boiler burner units are going to new high records. Automatic heating systems complete with air conditioning are now on the market. In fact, the oil burner is occupying an increasingly prominent place in air conditioning which is 100 per cent based on an automatic supply of heat. The demand for complete conditioned warm air and year-around air-conditioning systems is thus far largely in restaurants and stores and like establishments but that does not mean that air conditioning is not entering the home. Model housing enterprises are doing much to stimulate home utilization of air conditioning, and, with a building boom, this trend will receive impetus.

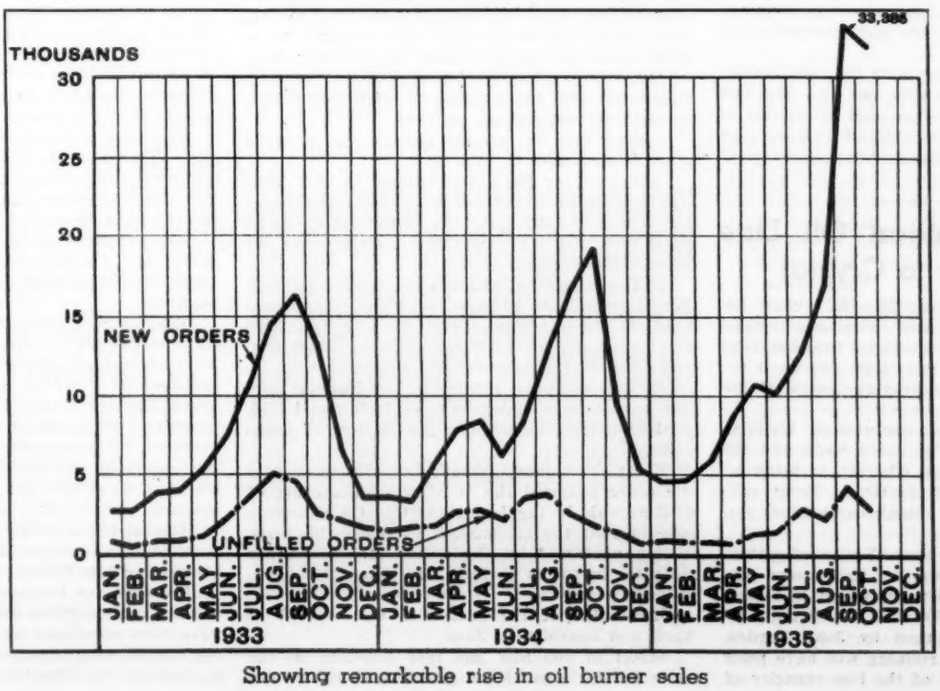
Fuel Specifications

From the standpoint of fuel specifications the trend of domestic burner design has been in recent years toward the heavier of the light distillates but not into the very heavy oils. Formerly most domestic burners used No. 1 and No. 2 oil. Present day burners in most cases use No. 3 with some using No. 4 which formerly was rarely used except in commercial and industrial installations. However, automatic domestic burners are not using No. 5 and No. 6 oils.

Oil burner manufacturers and dealers maintain service accommodations for oil burner installations. While oil companies and oil dealers in some cases service burners for domestic fuel oil customers, the projected marketing code of the petroleum industry provides against such service unless a charge is made for it.

As I have pointed out the oil burner manufacturer and the petroleum industry have a mutual interest, the one in selling oil appliances and the other in supplying oil. Both industries can stimulate this market by education of the public to wide appreciation of the efficiency and comfort of the oil burner and to the knowledge that there is an adequate supply of oil and that oil requirements can be readily supplied.

The national spotlight will be on the oil burner industry during the week of April 14 in Detroit when Oil Burner Institute holds its twelfth National Oil Burner Show and convention featured by oil burner and oil company exhibits.



Showing remarkable rise in oil burner sales

Pipe Line Progress

Continental Oil to Build New Louisiana River Terminal

NEW ORLEANS, La., Dec. 23.—Plans for the construction of a new terminal on the Calcasieu River below Lake Charles, La., and a new pipe line connecting the new facilities with the Tepetate field in Arcadia Parish have been consummated by the Continental Oil Co. and bids for this work called for. Immediate construction of the project is planned, the total cost estimated to be apprroximately $350,000.

The terminal will consist of two 80,000-bbl. and one 10,000-bbl. oil storage tanks, a 500-foot dock and the necessary building to house operations. The site is a 12-acre tract on the river near the Shell Petroleum Corp.'s Haymark terminal. The pipe line will be of 6-inch welded pipe and will be 50 miles long. The completion of the new terminal will make the fifth of such units on the channel serving the port of Lake Charles. Tankers have been carrying an average of 1,000,000 bbls. per month from these units during the past few months.

The Continental has been active in the territory only a few months and has extensive acreage under lease around their new discovery well in the Tepetate field.

Two New Pumping Stations on Mirando-Luling Line

SAN ANTONIO, Tex., Dec. 23.—Addition of two new pumping stations now under construction on the Mirando City to Luling line of the Magnolia Pipe Line Co. will increase the capacity of that line more than 50 per cent. The units are being installed at midway points between the original stations of the line. One in the southeastern corner of McMullen County between Government Wells and the Fant station is to be known as the Tilden station. Here two gas engine pumps of 165 horsepower each are being installed. Of Bruce-Macbeth make, they will maintain a pressure of about 700 pounds on the line. A camp consisting of six homes for line operators is also being erected at this point.

In Wilson County, midway between Fant and Luling, the Gillette unit is approaching completion. This comprises two motor-driven centrifugal pumps. The 200-horsepower motors will operate on current from the Central Power & Light high line about 5 miles distant. The pumps are Worthington 4-inch, rated at 700 g.p.m. and 3,500 r.p.m. All equipment for this station is on the site and construction is 75 per cent completed.

The capacity of the line with the new booster stations will reach 17,000 bbls. per day. The line is of 8-inch welded type. Increased production in Webb, Duval and Zapata Counties which the pipe line serves, necessitated the addition to capacity of the line.

To Move Michigan Oil Line from Porter to Crystal

MUSKEGON, Mich., Dec. 23.—Old Dutch Refining Co., of Muskegon, has closed negotiations with State Refining Co. of Michigan, Grand Rapids, for removal of a 7-mile crude pipe line from the Porter field to the Crystal field in Central Michigan, starting immediately.

The 3-inch line, formerly operated by Wellman Oil Co., between Porter Township wells and the Pere Marquette railroad at Wheeler, is being relaid from Crystal wells to the Grand Trunk railroad at Butternut where a tank car loading station will be erected.

Old Dutch also will lay several miles of gathering lines to wells in the Crystal field under contract to the Muskegon refinery which is hoping to start running about 1,500 bbls. of oil daily by January 1, it was announced by John Borden, president. The Muskegon refinery will have prior rights to 3,000 bbls. daily of the line capacity of about 4,500 bbls., the other 1,500 bbls. to be available to State Refining Co. for a proposed new plant in Grand Rapids.

Wide angle bend in natural gas pipe line

Old Dutch will continue moving crude from central Michigan fields to Muskegon by tank truck but is establishing the new pipe line facilities to be assured of an additional crude supply, Mr. Borden said.

Progress on Toledo Line

MUSKEGON, Mich., Dec. 23.—Simrall Pipe Line Corp., of Mount Pleasant, is rushing the erection of two 35,000-bbl. storage tanks on the Durbin discovery lease in the Crystal Township, Montcalm County field. The Crystal field is the Michigan terminal of the $1,000,000 pipe line now being laid from Crystal to refineries at Trenton, Mich., and Toledo, Ohio, a distance of about 140 miles with a 35-mile spur to Trenton. The new line with its capacity of 25,000 bbls. daily will be large enough to transport more than the present output of the Crystal field with the result feeder lines probably will be built from other existing or new fields in central Michigan. Standard Oil Co. of Ohio will own 50 per cent of the line. Simrall corporation also is erecting a new pumping station on the Durbin lease with a pair of 250-horsepower engines. The line is expected to be completed about January 1.

Agua Dulce Booster Station

SAN ANTONIO, Tex., Dec. 23.—Increased production from fields of Webb and Duval Counties may be handled in the Mirando City to Ingleside line of the Humble Pipe Line Co. A booster station is being erected at Agua Dulce which will increase the capacity of the line from 15,000 bbls. per day to 21,000 bbls. per day. Much of the added crude will come from the Loma Novia field in Duval County, where drilling and development has been active for several months. The laying of a line from this field to deep water at Corpus Christi is being contemplated by Claude Hamil, operator in the field.

Pipe Line Construction

FORT WORTH, Tex., Dec. 23.—Oklahoma Contracting Co., with offices in the Magnolia Building, Dallas, Tex., is constructing 10 miles of various size gas gathering line ranging from 6 to 18-inch, for Humble Oil & Refining Co. This line, being laid in the London area of the East Texas field.

Natural Gas News

West Texas Gas Co. Accepts New Rate Schedule

AUSTIN, Tex., Dec. 23.—Chairman Ernest O. Thompson of the railroad commission announces receipt of a telegram from R. E. Wertz, vice president and general manager of the West Texas Gas Co., that rate cuts ranging from 12½ to 17½ cents would be accepted by his company for a trial period and put into effect on December bills.

Mr. Wertz believed however, that the rate would not give his company a sufficient return to meet its obligations, he said.

United Gas Co. several months ago accepted a cut general over its system.

Effective for December billings by the West Texas company 15 cents was cut from the charge for the first 2,000 feet, 12½ cents for the next 2,000 feet, and 17½ cents per 1,000 feet for the next 46,000 feet.

Net rates, subject to one-ninth penalty for failure to pay bills in 10 days, under the order would be $1.35, the minimum charge, for the first 2,000 feet; 55 cents per 1,000 for the next 2,000 feet, and 50 cents per 1,000 for the next 46,000 feet.

Reductions were applicable to domestic and commercial rates in Lubbock, Plainview and Midland as well as numerous other Northwest Texas points.

E. O. Thompson, commission chairman, said the order followed the "finding of the court of civil appeals in the Lone Star Gas Co. gate rate case in that the commission exercises the jurisdiction conferred by the statute to fix burner tip rates in towns having more than 2,000 population."

Evaluation of the properties was started in April and hearings in June.

Effect of the new gas rate schedule on the agitation for a municipal gas system will be discussed by Lubbock city commission at its next meeting, Mayor Ross Edwards said.

Mixed Supply Is Proposed for Grand Rapids, Mich.

MUSKEGON, Mich., Dec. 23.—Officials of Grand Rapids Gas Light Co., affiliated with Muskegon Gas Co. as a western Michigan subsidiary of American Light & Traction Co., has announced plans to provide a 50-50 mixture of natural and manufactured gas for Grand Rapids residents.

Tentative contracts for supplying Grand Rapids with natural gas have been closed with independent producers said to control about 50 per cent of the Millbrook-Hinton-Belvidere Townships field in Mecosta and Montcalm Counties already assuring Grand Rapids of about 10,000,000,000 feet of reserves over a period of years, it was announced by Glenn M. Chamberlain, head of the Grand Rapids company.

While this is not enough to supply 100 per cent natural gas for a sufficient number of years to warrant laying a pipe line, the company filed a petition for a permit to lay such a line in the hopes additional reserves soon will be developed in central Michigan gas fields.

Mr. Chamberlain announced his company has contracted for the entire gas output of Pure Oil Co. on a 62,000-acre tract in the field not yet developed.

The Michigan Public Utilities Commission was notified of the company's plan and progress toward contracting a sufficient supply for the city.

Property and business of Kent County Gas Co. serving rural districts near Grand Rapids, recently have been purchased by Grand Rapids Gas Light Co. considerably increasing the potential outlet for natural gas to suburban customers.

Refinery Projects

Phoenix Is Erecting Pipe Still at San Antonio Refinery

A new lube plant is being erected at the San Antonio refinery of the Phoenix Refining Co., Inc. The unit, comprising of new pipe still and fractionation equipment, will have a capacity of 1,000 bbls. of finished product per day. At the beginning of operations, however, it will be operated at about 500 bbls. per day.

The plant will process Calliham or Whitsett, and Coletto Creek crudes, which contain a high percentage of good quality lube stock. The Phoenix company plans to specialize in bright stocks and special blending cuts to be marketed by tank car to points as far north and east as Kansas and Illinois. These lube cuts are well suited for blending purposes, showing a dark green cast. A clay treating unit in the new plant will be employed in refining the stocks.

The Phoenix Refining Co. has sold its plants at Houston and Abilene, retaining the San Antonio and Bruni refineries. Construction will begin in the near future on a new Phoenix plant at Bay City, Tex. This will be a skimming plant, specializing in gasoline and fuel oils.

Southport Adds New Cracking Unit in Texas City Plant

DALLAS, Tex., Dec. 23.—The Southport Petroleum Co., which has acquired properties of the Sinclair Refining Co. at Texas City, has awarded a contract for the construction of a 5,000-bbl. Donnelly cracking plant to the Mid-Continent Engineering Corp. of Dallas. The new cracking unit, to be constructed at Texas City, is designed to process East Texas and Gulf Coast crudes and will produce a high octane gasoline.

The Southport company has been operating a cracking plant at its Kilgore refinery for two years, the plant being of 5,000 bbls. capacity, with cracking facilities of 1,500 bbls.

McClanahan Stockholders To Double Plant Capacity

Stockholders of McClanahan Refineries, Inc., of Alma, Mich., recently voted to increase the company's capital from 125,000 to 200,000 shares at $1 par, the increase being voted to finance an improvement program designed to double the capacity of the plant from 1,500 to 3,000 bbls. of crude daily.

The company reported net profits of $41,306 from April 1 to October 31, 1935, or equivalent to 33 cents a share for the seven months' period.

Articles of incorporation also have been filed with the secretary of state and the Gratiot County clerk, revealing the formation of the Century Refining Co., which will build a fourth plant at Alma. Authorized capital is $400,000. A. F. Chase of Grand Rapids filed the articles.

Pan American to Double New Texas City Refinery

The Pan American Refining Corp. will double the capacity of its Texas City refinery within the next three months, a contract for the erection of a 30,000-bbl. combination skimming and cracking unit having been signed in favor of the M. W. Kellogg Co. At the present time the company has under construction a large polymerization unit of the catalytic type which will further increase the motor fuel production capacity of the plant.

When the new work is completed, the refinery will be capable of handling up to 55,000 bbls. of crude oil daily and its cracking and polymerization capacity will be sufficient to produce gasolines of exceptionally high anti-knock value with a minmum of consideration given to the source of the crude oil.

The amount of money to be spent in this new construction program has not been announced but engineering estimates have been made well in excess of $2,000,000.

The Pan-American Refining Corp. is a wholly owned subsidiary of the Pan American Petroleum & Transport Corp., which in turn is controlled by the Standard Oil Co. (Indiana).

Products of the Texas City development will be marketed by the American Oil Co., a wholly owned subsidiary of Pan American Petroleum & Transport Corp.

Texas Completes Solvent Unit

PORT ARTHUR, Tex., Dec. 23.—Texas Co. has completed construction of a solvent refining plant at its Port Arthur refinery. Test runs of the unit are now under way. The plant, erection of which has been under way for the past few months, utilizes furfural and is claimed to be the second largest solvent refining unit in the world.

This is the second such plant to be placed in operation at Port Arthur in recent weeks. The other plant, which is at the Gulf Refining Co. refinery, was completed about six weeks ago and is now on full and regular operation.

Start McClanahan Unit

CHICAGO, Dec. 23.—McClanahan Refineries, Inc. has just signed a license contract with Universal Oil Products Co. and has started construction of a Dubbs reforming unit in its refinery at St. Louis, Mich. The unit, which will have a charging capacity of 1,250 bbls. a day, will include absorber and stabilizer and caustic and doctor treating plant. It is designed with oversize parts to facilitate future addition of a two-coil Dubbs cracking unit. Arthur G. McKee & Co., of Cleveland, is the contractor.

The refinery at present has a 1,600-bbl. a day crude distillation unit which is being enlarged to handle approximately 3,000 bbls. a day.

The refinery is supplied with crude from the Crystal field by the McClanahan Oil Co. through a 4-inch pipe line operated by the McClanahan Pipe Line Co.

Republic Building New Furnace

HOUSTON, Tex., Dec. 23.—Republic Oil Refining Co. has started a new construction program at its Texas City refinery which will include the installation of a new furnace for its cracking units, and an additional boiler for its power plant. The latter will make a total of three boilers to meet the steam requirements. This company early this year put in operation a complete vapor recovery plant.

El Centro absorption plant, International Petroleum Company, Ltd., processing wet gas from wells of Colombia

Texas January Allowables

AUSTIN, Tex., Dec. 23.—All flush fields were cut in the Railroad Commission's oil proration order for January, bringing the state total down to 1,015,611 bbls. daily compared to actual daily production of 1,072,845 bbls., a reduction of 57,234 bbls.

East Texas was given a cut of between 6,000 and 7,000 bbls. per day shrinking the per well allowable from 2.8 per cent of an hour's potential to 2.7 per cent. The commisison estimates this will produce 428,000 bbls. daily compared to the present 434,000 or 435,000 bbls. per day.

Amounts cut from other flush fields include 6,150 from Conroe, 5,510 from Van, 5,869 from Yates and 1,000 each from Panhandle and North Texas.

Estimate of market demand as made by the U. S. Bureau of Mines for January assigns 1,017,200 bbls. to Texas, which makes the commission's state allowable 1,589 bbls. under the federal figure.

Sweet Completes Improvements

The Sweet Oil Refining Co. last week completed a $75,000 improvement and new installation project at its plant in Wyman, Mich. The plant is now in operation, refining principally sweet Traverse crude produced in the Home Township, Montcalm County field of central Michigan.

The Pentagon Refining Co. also is nearing completion of a new 2,000-bbl. skimming plant at Detroit. The construction of the plant is under the direction of E. G. Guy, refinery engineer and operator of about 10 different independent plants erected in Michigan in the past six years.

Natural Gasoline

Gasoline Association Makes Important Announcements

Two important announcements were made this week by the Natural Gasoline Association of America regarding its next annual convention on May 13, 14 and 15 in Tulsa. In as much as the A.P.I. mid-year convention has also been scheduled to be held in Tulsa on these dates, the Natural Gasoline Association has cancelled its reservations in the Mayo Hotel and all meetings of the group will be held in the Hotel Tulsa.

The other announcement includes the names of the convention program committee. George P. Bunn of the Phillips Petroleum Co. has been named chairman of this important committee and to assist him as committeemen will be R. E. Baker of the Shell Petroleum Co., W. F. Fulton of the United Gas Public Service Co., R. D. Gibbs of the Union Oil Co. of California, W. B. Moran of J. E. Crosbie, Inc., and J. W. Vaiden of the Skelly Oil Co. These men were appointed by T. R. Goebel of the Skelly Oil Co. and president of the association.

With a strong program committee the association expects to be able to gather together an exceptionally interesting group of papers on subjects which will lead to constructive discussions on the floor of the convention.

The Natural Gasoline Association of America in past years has gained recognition in part at least through its programs of research and development and the annual meetings have been especially well attended by men in the natural gasoline industry and there have been many men attending who have been in the refining and marketing branches of the oil business. This year the holding of the International Petroleum Exposition in Tulsa from May 16-23, the holding of the A.P.I. convention and the association's convention simultaneously from May 13-15, will permit many to come to Tulsa and to attend some or all of the association's meetings.

Study of Recovery by Air or Gas Drive Is Planned at Pennsylvania State

By R. C. CONINE

STATE COLLEGE, Pa., Dec. 23.—To obtain information which may save oil producers large sums in hopeless development costs, an appropriation of $2,400 has been approved by the Pennsylvania Grade Crude Oil Association, and the Commonwealth, jointly. The fund is to be expended in the study of factors involved in the recovery of petroleum from reservoir rock by air or other gas drive. The work will be carried out in the Mineral Industries Experiment Station of Pennsylvania State College under the direction of Dr. A. W. Gauger, director, assisted by Dr. G. L. Hassler, assistant professor of petroleum and natural gas engineering.

Reasons for the investigation, the first of its kind, are on the practical operating side entirely. The recovery factor, or the percentage of petroleum that can be recovered from a given reservoir rock, Doctor Gauger says in his report to the association, is related in some manner to the sand conditions and, perhaps, also to the nature of the oil. Experiments performed in the station laboratories demonstrate that some sandstones will give up more oil than others, when cores are saturated with oil and then submitted to air drive. Measured recovery factors on sandstones that appear identical, he says, may vary enormously in the case of tests using air drive.

Large appropriations which have been made possible by operators in the Bradford district have permitted an extensive study of water-flood recovery problems. In this work there has been some reference to gas drive, and a large number of cores from the so-called "broken sand" areas have been tested. However, it has not been possible because of lacks of funds to conduct an investigation of the scope just approved. The importance of the new gas drive study is revealed by Doctor Gauger's report as follows.

Venango Recovery Higher

Wide variations in recovery factors revealed by tests of two apparently identical sandstones studied for possible application of gas drive, occur also in experiments with water drive, but the magnitude does not appear to be as large. For example, Doctor Gauger says, experiments with water drive on Second Venango sands gave recovery factors ranging from 49 per cent to 65 per cent; on Bradford sands the recovery factors ranged from 49 per cent to 50 per cent. Similar experiments, using air drive, on Bradford sands shows retained oil ranging from 41 per cent to 82 per cent. A study of the relationship of recovery factors to sand structures is therefore of great importance in the region of repressuring operations.

Doctor Gauger points out that such experiments have an important bearing on problems of evaluation. If some sands have a maximum recovery factor, that is, indicate a low yield, no kind of treatment short of preferential wetting or retorting will increase the recovery. This is knowledge that it is possible to obtain at much less expense in the laboratory; possession of it may save large sums that might otherwise be expended in hopeless development costs. Proceeding on the theory that recovery factor is a definite, measurable property of oil sands, just as definite as permeability and porosity, it is proposed (a) to place the measurement of this property on a sound basis, and (b) to try to find out what factors determine the limitations of the maximum recovery of oil from a sandstone.

Procedure Plan

(a) To begin, it is proposed to measure by the weight difference method, the recovery factors of the materials available in our laboratories and of samples submitted by the contributors to this research and to compare these measurements with other measurable properties of the sandstone. This should give us a standard recovery factor test that will yield reproducible results wherever run.

(b) The effect of viscosity of the oil on recovery factor will be studied; the reduction in viscosity will be obtained by using natural gas instead of air drive.

The effect of surface tension of the oil on recovery factor will be studied. Some investigations have been made on the relation between gas concentration and surface tension but we know of no data which will tell us the effect of surface tension on recovery factor. The capillary size and distribution will be studied. The effect of air and exhaust gases on the oil and on the sands will be studied.

The research laboratories at the Mineral Industries Experiment Station are well equipped. The services of specialists in other fields such as fuel technology, geology, X ray, ceramics and petroleum are available for consultation and advice. Other services available are library, analytical laboratory, shop, etc. The college provides all overhead expense such as heat, light, electric power, hot and cold water, janitor service, stenographic service, etc. The state matches any funds contributed by industry and will apply these funds on related research.

Patent Rights

In reference to rights to new developments it is the policy of the college that all rights and obligations of the college and sponsor can be covered by agreement between the two parties. In the event of any patentable discovery, when the cost of the investigation is borne by the sponsor, the patent, by agreement, may be assigned to the sponsor. When the expenses are shared jointly by sponsors and the college, rights to any discoveries shall be shared jointly.

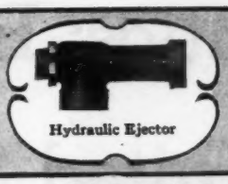
Producers in the Pennsylvania oil fields outside of Bradford have for some time urged recognition by the state of the oil industry's contribution in taxes and other levies. The present policy of matching funds is, of course, welcomed, but it is pointed out that producers as well as refiners have little margin for financing much needed studies properly when taxes consume as much as 50 per cent to 75 per cent of profits. It is to the state's interest to assure a long and paying life to the Pennsylvania oil fields, and this is not accomplished by extracting millions of dollars and returning a few hundreds for petroleum research,

Exterior view of pressure plant including cooling system near Warren, Pennsylvania

operators feel. Most of the benefits to the entire region come from work sponsored by the Pennsylvania Grade Crude Oil Association.

C. C. Brown, Tax Commissioner

Charles C. Brown, resigned as assistant state oil conservation officer to accept an appointment to the office of state tax commissioner in Oklahoma. Governor Marland in making the appointment said he wanted a practical oil man on the tax commission. Mr. Brown was a vice president of the Marland Oil Co. and has had a broad experience in the oil industry. Mr. Brown succeeds E. L. Richardson of Lawton, Okla., who resigned to resume his law practice.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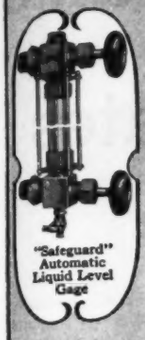
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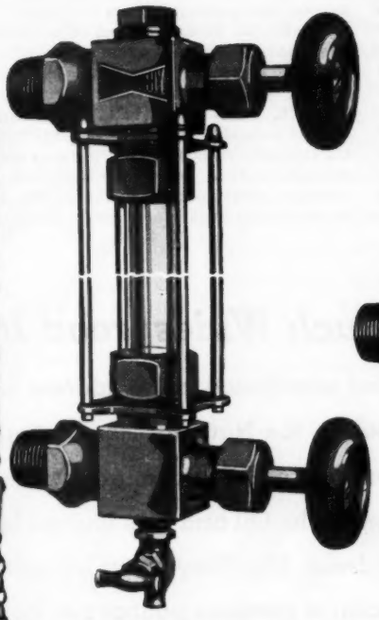

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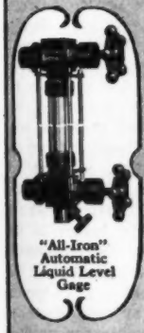
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The Industrialist and Politics; Resume of the Situation in the United States

By S. WELLS UTLEY
President, Detroit Steel Castings Co.

Twenty-four hundred and eighteen years ago some human being, wandering over the rugged plains of Laurium, not far from Ancient Athens, held in his hand a piece of jagged rock. Who he was, whether a freeman or a slave, whether an explorer or a casual passer-by, the world will never know. No monument will ever be erected to his memory, and, yet, within his hand he held the key to life for generations yet unborn; because of him you and I may gather here today.

That piece of silver ore was the beginning of the mining industry of Ancient Greece. With the profits from that industry Athens built its navy, and with that navy it turned back the Persian hordes of Xerxes at the battle of Salamis. The fact that the outcome of this battle determined that the coming civilization of western Europe, the civilization inherited by you and me, was to be an Occidental and not an Oriental civilization, has caused historians to call Salamis the first decisive battle of the world.

During the next 11 months the people of this country must engage in another battle, and it may well be that it will be the final one, decisive of the fate of our civilization. Strangely enough, the same question is again involved as was involved in that struggle almost 25 centuries ago — the question of whether future civilization is to be Oriental or Occidental. True, we are not fighting Oriental ships and Asiatic men, but we are fighting Oriental systems of government, and Oriental philosophies of life, implanted in the minds of well-meaning but deluded people, implanted in the minds of other people who would gladly wreck our structure for their own personal gain.

If you think that I am too extreme, consider the recent remark of Doctor Tugwell: "I regard the coming months as among the critical ones of our history." or go over in your mind the world happenings of the last 18 years; consider that if you travel west from San Francisco you will cross the entire continent of Asia, all of eastern Europe, all of central Europe, and that it will only be when you come to a thin fringe of countries facing the Atlantic that you will find a single government that believes in the freedom of the individual man, that believes in the principles of the Christian religion. To the north of us, while the dominion as a whole still follows its traditional course, one of the western provinces has already sold liberty for security; while to the south, Mexico has long since been a disciple of communism. If the United States succumbs, if it trades the principles of the past for the dazzling spangles today held before its eyes, it is inevitable that the civilization of the modern world will crumble on its ruins.

The silver mining industry of Athens gave us the world we know today; will the industry of America preserve that world for future generations?

These are only two forms of government: "That whereunder people govern themselves, and that whereunder they do not; that whereunder the inalienable, God-given rights belong to the citizen, or that whereunder these rights belong to government, and the citizen possesses only such rights as that government chooses to delegate to him."

Under the former, a form of government which has been in existence less than 150 years, the common, every-day man in this country has been secure; secure in his right, irrespective of class or birth, to develop his inherent ability to the highest possible point; secure in his right to speak his thoughts unmolested, to worship his God as he chooses, and to have a press which is free to criticize government and those who conduct it; secure in his right to chose a business and conduct it as his judgment dictates; secure in his right to freedom from tyrannical persecution, in his right to a trial by jury, to freedom from indictment except by a grand jury, and to the legal right to compel the testimony of witnesses; secure in his home by the provision that his property cannot be seized by government except through due process of law, cannot be entered and searched except upon an order from the court, cannot be taken over by the government for the quartering of troops or other purposes without his consent; and, finally, he is secure in his right, as the sovereign power in the state, peaceably to petition his government, or change that government and the people who constitute it.

In return for this security, for the freedom to manage his own affairs, so long as he obeys the law, the common man has of necessity assumed certain obligations and duties; the obligation to stand on his own feet, and to stand by the consequences of his own acts, whether they be successful or unsuccessful, to support himself and his family, to act as a law-abiding member of the state, and to support the government of that state.

No man can freely and impartially discharge his duties as a citizen so long as he is supported through the payroll of a political government, so long as his daily bread comes as a hand-out from that government, so long as the amount and character of the crop he plants, or the business he does, is subject to political control, so long as his operations are dependent on contracts financed by government money, so long as his sources of credit are controlled by political forces, so long as his home or his business is subject to mortgage held by government. There is infinitely more danger of human liberty being sold for glittering baubles than there is of its being lost through defeat in battle.

With the advent of the present administration, led and manned almost entirely by men who have never produced a dollar's worth of real wealth in their lives, has come a definite declaration that the principles upon which the American nation has been built are a failure; that they must be cast out; and that for them must be substituted principles imported from abroad and alleged to be new but as a matter of fact, as old as human history, in truth, the very principles from which our fore fathers fled to this country. It has been repeatedly charged that the reason we have suffering and want is because we have produced too much wealth, and that the way to correct the situation is to destroy that wealth, so that we may all be poor together; it has been repeatedly charged that the business man, the leader in the wealth creation, is responsible for the depression, and that the way to get out of it is to handicap in every way possible those who are responsible for producing the things we need; it has been repeatedly charged that the average man is no longer able to take care of himself, that he is no longer capable of planning and directing his own life, but that this must be done for him by government through bureaus and commissions appointed by politicians.

Time doesn't permit our going into the details of all the laws which have been enacted during this period. Suffice it to say that notwithstanding all of their apparent inconsistencies, they have this in common, that they tremendously increase the power of the federal government, and specifically of the president, over the life and activities of the citizens; that they correspondingly curtail the right of the citizen to regulate his own life; that they materially and severely curtail and abridge those things which previously have been considered inalienable rights; and that, as a whole, they tend definitely to decrease the productivity of the country. Each and every one of them proceeds on the theory that it is a crime "to make two blades of grass grow where one grew before." Each and every one seeks to take away wealth from those who, through ability and industry, have acquired it, and give it to those who for some reason or other have been unable to produce as much as they have consumed. Each and every

Such Widespread Interest

has been manifested in the address of Mr. Utley delivered before the National Association of Manufacturers' Congress of American Industry in New York early this month. The Oil and Gas Journal herewith presents that address. Mr. Utley treats his subject not from the standpoint of partisan politics nor from the standpoint of big business. He says of the present and future situation, "This isn't a battle for the future of industry, it is a battle for the future of free America." He claims "the question of political policies has become far more vital to each one of us than the question of value of sales or cost of product."

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The burden of taxation, if permitted to continue on the present basis, will within a single generation destroy the liberty of the people and wreck their economic structure

one, while prating of security, actually makes less secure the life and work of every business man, farmer, clerk, and working man. They all proceed on the fundamental principle that government should have control of the details of the life of the people, rather than that citizens should have control of the power of government.

Government as the Supreme Arbiter

There can be no argument as to what the present administration is seeking to do. Its members have been perfectly frank as to their intentions. In his message to congress, January 3, 1934, the president stated that America must have "a permanent readjustment of many of our ways of thinking, and, therefore, of many of our social and economic arrangements," after which, he goes on to speak of "the new economic order," and "the proletarian state." In his message a year later he said, "We have undertaken a new order of things; the outlines of the new economic order, rising from the disintegration of the old, are apparent," leaving the impression that he, like Mussolini, believes in the authoritarian state, a state in which "the government is the sole and supreme arbiter of the needs of society."

Doctor Tugwell, still on the public payroll as a high official of the Agricultural Department, in his recent book says: "For many years the technical task of devising plans for regulating our complex economic interests was too difficult to attempt. But today we know that this is no longer true, for Russia has shown that planning is practicable." From what are said to be official sources, which so far as I know have never been challenged, we find that up to 1926, as a part of that planning, the executioner disposed of 28 archbishops and bishops, 6,765 priests, 6,575 teachers, 8,880 doctors, 54,850 officers, 260,000 soldiers, 150,000 police officers, 48,000 gendarmes, 355,250 intellectuals, 198,000 workers, 915,000 peasants, a total of slightly over 2,000,000 souls. Other statements of conservative and creditable observers relative to famine conditions of the last four years lead to the inevitable conclusion that the political and economic system in Russia today has cost twice as many human lives as were sacrificed on both sides of the line in the 52 months of the World War. Does Doctor Tugwell mean to say that this is the way toward increased happiness for the American people, or is he too densely ignorant to know the practical results of the fine theories he expounds so glibly?

The Downhill Slide

Nor do these conditions come through conscious effort. We are like a man who loses his footing on a mountainside; once started, natural forces carry him down without effort on his part; only by stopping himself, only by slowly and laboriously retracing his steps, can he escape inevitable doom. Cotton control leads to peanut control, peanut control leads to potato control, and finally to the control of all other products. Excessive taxation of income leads to confiscation of savings and capital, and after these are exhausted, to a levy on other things, until the state owns everything, including the lives of its subjects. When this condition arrives, the sole remaining question to be decided is whether the life of a particular individual is worth as much as the food he consumes, and in millions of cases the answer is in the negative. Communism may be a beautiful theory, but its inevitable result is misery, slavery, and death.

All the fantastic things which are going on about us are being done in the name of economic security. Even assuming that they would produce the promised security, a thing that is far from the fact, is it worth the price of the loss of liberty?

The situation reminds me of a story. A man driving a high-powered car on one of the roads bordering the Hudson River was stopped by a policeman and charged with driving 60 miles an hour. After listening to the cop for a moment, he broke in, "I am in a hurry. If you are going to write me up, why don't you go about it and get it over with, so I can get on my way?" The astonished policeman took him to the nearest town, brought him before the judge, and told his story. The judge turned to the prisoner with the query, "Well, what have you to say about it?" to be thunder-struck with the reply, "He is your own officer, isn't he? Don't you believe what he says? Why do you ask me whether he is a liar or not?" Incensed, the judge imposed a fine and threatened imprisonment, only to be met by the rejoinder, "Well, hurry up and do whatever you are going to do. Be quick about it, for I am in a hurry. You can't do anything to me anyhow." Recovering from his amazement, and wondering whether he was talking to a lunatic, the judge finally exclaimed, "Well, who on earth do you think you are, that you can talk to me in this manner?" only to be met with the calm reply, "I am the chauffeur of the warden of Sing Sing and I am a lifer."

Man Who Achieved Economic Security

This man has achieved security. All his life, so long as you and I pay the taxes, a beneficient government will take care of him, feed him, clothe him, doctor him, and even relieve him of the taxes the rest of us pay. Do you want his security, or does he want your liberty?

Those of us who still believe in the effectiveness of the fundamental principles of American life will make a fatal mistake if we assume that these destructive tendencies are of recent origin: If we fail to realize that the slow poison has been working through our body politic for many, many years. In order that you may realize how far back the foundations go, how clearly the situation was recognized 15 years ago, when another administration and another political party were in power, let me read to you resolutions unanimously adopted by the convention of this association on May 19, 1920, as printed on page 300 of that year's proceedings:

Whereas, there exists a widespread social unrest which is destructive of individual happiness, unsettling to industry and against the general welfare of all the people and which if continued threatens the very foundations of the nation itself; and

Whereas, this unsettled mental state is caused largely by fancied wrongs which have been made to appear as real, both by careless or misleading statements appearing in the public press and by the deliberate misrepresentation and falsehood of those radical leaders who, for selfish reasons, seek by the preaching of unsound economic doctrines to overturn that government which has created the most equal opportunity for advancement ever enjoyed by man; and

Whereas, the industrial centers have been and are now being flooded with the most amazing quantities of insidious and well-written propaganda condemning the existing order of society and advocating doctrines which have already undermined the will to work and by breeding inefficiency and strikes have enormously curtailed production and which if persisted in can only bring disaster; and

Whereas, such propaganda can be successfully counteracted only by making available to the great mass of the people industrial information and elementary economic principles which will enable them to see the vicious sophistry of such propaganda; now be it

Duty of Every Business Man

Resolved: (1) That it is the duty of every business man to carefully scrutinize that part of the public press which he usually reads; to promptly and vigorously challenge either in person or by letter any statement concerning industry or industrial relations which he knows to be untrue or misleading; and by personal communication to endeavor to correct the same or any news items or editorials which by misrepresenting facts form a basis for arguments which may increase social unrest and as in favor of those which preach the doctrine of true Americanism, and

(2) That the board of directors of this association be asked to carefully investigate the possibilities, the conjunction with such other organizations as may seem desirable, of planning and starting a nation-wide drive to furnish to all our people the simple fundamental economic facts which must be the basis of successful industry and successful industrial nations to the end that they may realize that happiness and prosperity can be achieved only by industry and natural laws and not by idleness and force.

Fifteen years ago these subversive forces were sufficiently active to be clearly recognized. It will take something besides one campaign to undo the damage they have done!

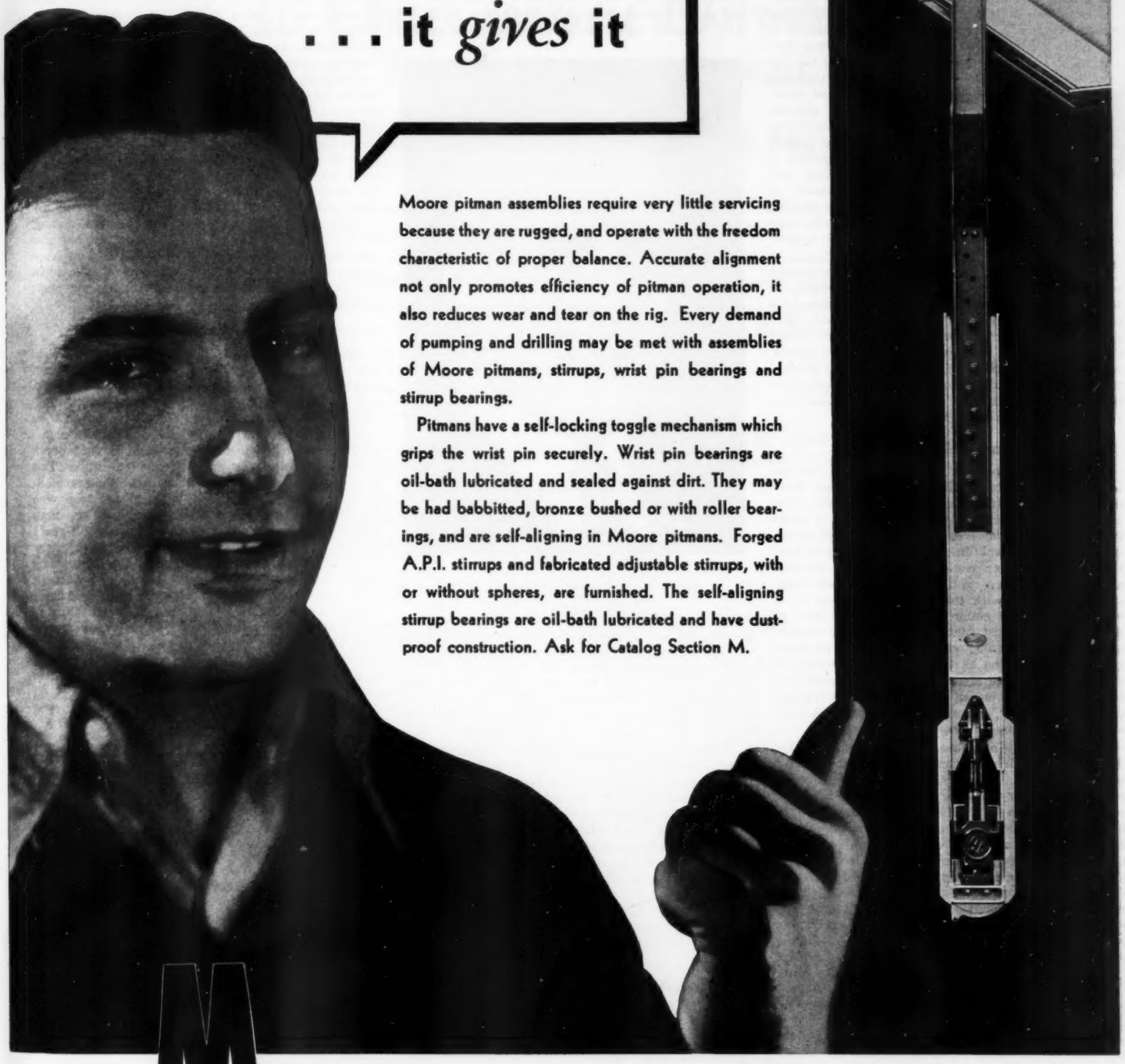
Belatedly, after a lapse of altogether too long a time, this association more than a year ago started definitely to discharge its obligations under that resolution. Have you as business men started to discharge your obligations? Are you vigorously challenging any statements concerning industry or industrial relations which you know to be untrue or misleading? Are you personally endeavoring to correct news items and editorials which misrepresent facts, and thereby form a basis for arguments tending to increase social unrest? Are you beginning to see the necessity of striving to save your own skins instead of assuming that somebody else will save them for you?

An Unbelievable Tax Burden

The result of the things which have been done by the government, both federal and local, since the adoption of this resolution, has brought about a tax burden almost beyond belief. The expenditures of the present federal administration, as-

No man can impartially discharge his duties as a citizen so long as the amount and character of the crop he plants or the business he does is subjected to political control

This Pitman Assembly doesn't *take* service ... it *gives* it



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suming that estimates for the coming year are fairly accurate, will have been equivalent to the total cost of the federal government from the inauguration of George Washington to that of Woodrow Wilson; the emergency relief appropriation, the greater part of which will be used for buying votes, is alone greater than the cost to the government of all the wars from the time of the Revolution to the World War. The total estimated cost of government, federal and local, including both money raised by taxing and borrowing, for the fiscal year of 1934, is $15,500,000,000, against an estimated national income of $47,000,000,000. Such astronomical figures are incomprehensible to the ordinary mind, but when we realize that during the same period the total cost of food for the American people was estimated at $7,650,000,000, the cost of rent at $3,600,000,000, the cost of clothing at the same figure, and the cost of medical expenses of all kinds at $1,000,000,000, we arrive at the staggering conclusion that it cost the American people as much to govern themselves as it did for their food, their rent, their clothing, and their medical attention. Ought government to cost any people as much as the necessities of life? Is the government we are getting worth any such tremendous amount? Can any people hope to continue to prosper on such a basis?

I say to you in all seriousness, that the burden of taxation, if continued on the present basis, or the burden of the social security legislation now on the statute books, or the fundamental principles underlying the Agricultural Adjustment Act—either one of them alone, without the help of the others, if allowed to continue will within a single generation destroy the liberty of the people, wreck their economic structure, and reduce this nation to a condition akin to that of Russia today.

Duties as Well as Privileges

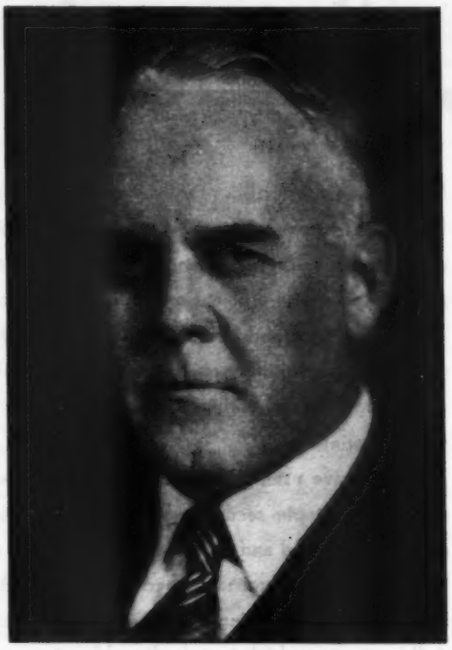
If we are to remain citizens, and not become subjects, we must again realize that we have duties and obligations, as well as privileges. The men engaged in productive work have quite largely withdrawn themselves from the political arena. They must get back in. They must realize that they are no longer concerned with the question as to how they are going to manage their business, but rather with the more serious one as to whether they are going to have any business to manage. They must realize that the laws already on the statute books will destroy that business, that it can only be saved through the repeal of these laws, and the abandonment of the principles back of them. This can only come about through political endeavor, through definite and positive action through one of the political parties.

I am not one of those who is given to indiscriminately criticizing the business man for his lack of interest in politics. It hasn't been my experience that very many of them fail to cast their votes on election day. Nor do I blame them for the fact that they have not been able to devote much of their time to party leadership. After all, the one unchanging fact in this world is that there are but 24 hours in everyone's day, and each one of us is forced to pick and choose those things with which he wishes to occupy this time. The man engaged in productive enterprise, confronted with the necessity of producing wealth for the common good, of providing employment and a livelihood for those dependent upon him, has quite naturally and quite logically given his time to those problems which were nearest at home. Nevertheless, his withdrawal from this field has meant that it has been occupied almost entirely by officeholders who are thinking primarily not of the interests of the nation as a whole, but rather of their own particular job. However, today the situation is changed. The question of political policies has become far more vital to each one of us than the question of value of sales or cost of product. The battle is definitely on the political front, and unless the business man gets into that fight, with his time, his energy, and his money, he will soon cease to be a business man in the sense in which we have been accustomed to use that word.

Fundamental Americanism

It will not be sufficient to simply vote in the coming election for someone who wears a different party label. We must resell the American people and the political parties on the fundamental soundness of American conditions, American ideals, and American ways of life. We must see to it that those who are elected to office not only believe in these ideals, but have such an abiding faith in them that they will stand against all opposition. To do that, you and I must take a definite and aggressive part in the battle these coming months.

How did your members of congress vote on the "New Deal" bills? If you don't know, insist that your local or state association find out and advise you. During that first 100 days of the coup d'etat, when the very foundation of our political and social system was being overturned, or, in the later session, when so many laws were passed



S. WELLS UTLEY

which the courts are saying, with increasing emphasis, are subversive of the fundamental law of this land, did they remember their oath to "preserve, protect, and defend the constitution of the United States?" Did they represent yourself, your neighbors, your stockholders, and your employes, or did they join in the wild cry condemning all business men? Do you want them reelected?

Unless your representatives in congress are among the few rare souls who have stood firmly for American principles, it is your duty to oppose their renomination at the primary of your party with all the resources at your command; your duty, in cooperation with others who think as you do, to solicit, if necessary, some outstanding citizen of both principle and courage to run in opposition for the nomination, and then support him to the very limit. Remember this, that if the men who are responsible for the things which have been done are reelected, except in spite of your utmost efforts to defeat them, you will have no just grounds for complaint over what they do to you.

Individual "Political Managers"

The foundation of the party system is the county chairman and the county committee. What are your relations to these men? Are you impressing on them in a dignified and proper manner your ideas on these questions, or are they hearing only from those who have a political job to protect? Your companies have employment managers, personnel men, welfare men, etc. Why not have a "political manager," a man whose duty it will be to keep in contact with the active political forces in your district, to interpret your thoughts to them, and to keep yourself, your stockholders, and your employes informed of what is going on, in order that those whose time is spent in productive enterprise may at least have as much to say about the men who conduct their government as do those less busily employed?

Suppose that upon going home each one of you were to make known to the leaders of your party that you desired to be included in your state delegation at the coming national convention; that you desired to have a part in writing the platform of your party. You might not be chosen, but the fact that you have shown that much interest would have a tremendous effect on the action of those who were.

Duties of an Industrialist

As an industrialist, there are three groups of people with whom you come in contact: Your stockholders, your employes, and the public you meet in your daily life. In this critical situation what is your duty toward them? The ordinary stockholder, dependent for his information upon the newspapers, largely fed through the administration's propaganda bureau, has no conception of the seriousness of the situation; he doesn't realize that forces are already in operation which if continued must inevitably deprive him of his property. You have information which he does not possess—economic and statistical information furnished through various business organizations, legal opinions and legal advice from the counsel of this association, the state and local associations, and the attorneys who look after your corporate affairs. This information is paid for by your stockholders' money. Isn't it not only proper, but imperative, that you pass this information on to the people who have made it possible for you to get it, and who have placed upon you the burden of the management of their affairs?

The "Impassable Gulf" Theory

Years ago organized labor advanced the thesis that between employer and employe there was an impassable gulf, that each one represented a separate and distinct class, whose interests were eternally opposed to the other. They have never been able to sell this doctrine to the man in the shop; if they had, the closed shop would be universal, instead of being the exception to the rule. But they have quite largely sold it to the management of industry, and they have "kidded" the men who sit in the front office into believing that the man in the shop doesn't want his advice and will react against it if it is offered. If the men in industry would devote a small percentage of the brains and effort toward selling their ideas to the men in their shops that they devote to the selling of their product to the public, doing this in a straight-forward, clean-cut, man-to-man fashion, they would find that 90 per cent of those employes would gladly follow them to the end of time. This isn't a battle for the future of industry; it is a battle for the future of free America.

George E. Goddard to Succeed G. A. Tompson January 1

Guy A. Tompson, chief purchasing agent for the Empire Companies, Bartlesville, Okla., for several years past, is to become sales manager for the Taubman Supply Corp., Tulsa, January 1. Mr. Tompson is to be succeeded by George E. Goddard, assistant superintendent of production of the Empire Companies. Mr. Goddard has been connected with the production department of the Empire Co. for the past 19 years and has been in various fields where the company has been active during that period. He was moved into Bartlesville, Okla., December, 1934, to become assistant to Ray Shaffer, production superintendent and was selected as Mr. Tompson's successor because of his familiarity with the company's activities and needs.

Mr. Tompson requires no introduction to the oil fraternity for he has been actively identified with the purchasing group both of the oil industry buyers and the National Association of Purchasing Agents for many years. He has served as vice president of the N.A.P.A. and was tendered the office of president but ill health at the time prevented his accepting. Mr. Tompson has also been president of the Tulsa Purchasing Agents' Association and has served as chairman for several of the important committees of the oil buyers' group in the N.A.P.A.

R. T. Soper, warehouseman, in the Cumarebo field, Venezuela, is visiting at his home in Louisville, Ky.

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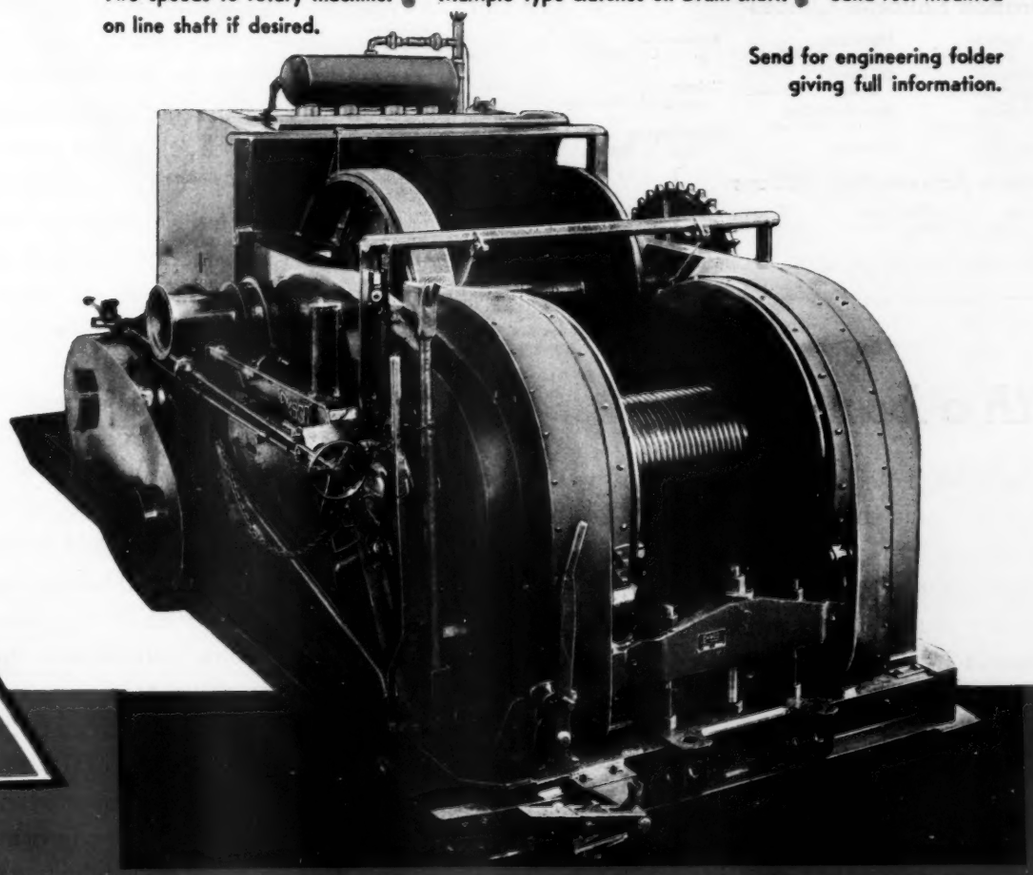

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Back With a Bang

An increase of 19,000 barrels daily in the required production of crude during January, or nearly 100,000 barrels above the level of January a year ago, reflects the vast improvement in the situation of the petroleum industry during the past 12 months.

Motor fuel demand has come back with a bang, surprising even the most optimistic. The Bureau of Mines believes that the unusually high refinery shipments to jobbers and retailers in October will be largely consumed before January 1 and that a prediction of a 9 per cent increase in consumption over January a year ago in the coming month is justified.

The condition of stocks is reflected in the recommendation for withdrawal of 25,000 barrels of crude daily in January compared with 35,000 barrels daily during December, described as a compromise between opinions that stocks be reduced in California, that some major purchasers continue to draw on their stocks and that stocks in a few states be increased.

With gasoline stocks at 52,000,000 barrels November 30 and the economic level set at 66,500,000 barrels for March 31, an increase of 4,230,000 barrels is recommended for January.

With the situation so sound the industry is justified in having a merry holiday season and looking forward to a happy New Year.

Oil for Heating

Not least among the encouraging signs for the oil industry this year has been the rapid development in the use of oil for heating. A new record of 150,000 oil burners sold in 1935 has brought the total in use to over a million, bringing the annual consumption of burning oils to over 50,000,000 barrels, surely large enough to justify the consideration now being given to this market by enterprising oil units.

News of practical importance to the oil industry about this development is presented in an article by G. Harvey Porter, managing director of the Oil Burner Institute elsewhere in this issue.

The comparison with the development of the motor car, the radio and the electric refrigerator is very pat. It was only when these articles won public recognition for reliability, usefulness and convenience, that sales began to soar. The first million was the hardest.

It is particularly significant that half of this million of burners has been sold in past six years despite the depression and a period when new home construction was almost at a standstill.

Considering the accumulated demand from normal growth in that time and the government estimate that 175,000 new homes will be built in the coming year it is reasonable to assume that this year's record for oil burner sales will be easily surpassed in 1936.

The experience of a million oil burner users is bound to stimulate demand. And as in the case of the car, the radio and the electric refrigerator the more sold the easier it will be to sell more.

The possibility of the oil industry having its market for heating oil doubled to 100,000,000 barrels a year is not remote. One oil company reports an increase of 118 per cent in its burning oil sales in a northern state in November over a year ago, which cannot all be attributed to weather contrasts.

The greatest gain is made where the oil dealer and the burner dealer cooperate to the fullest, not in salesmanship but in service as well. Lack of that cooperation can as surely divert business.

The opportunity offered the oil business for balancing the gasoline and heating oil seasonal demands into a year-round profit is too good to be neglected.

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STYLE 57, 12" C.I.P.
STYLE 57, 12" C.I.P. MULTIPLE INSTALLATION
STYLE 54-A, 16" O.D.

COUPLINGS AND LONG SLEEVES

STYLE 38 Steel Couplings make PERMANENTLY TIGHT, flexible connections between plain-end pipe sections, are quickly and easily installed by unskilled labor, are rubber gasketed, and absorb all normal pipe movements. Sizes: ⅝" I. D. to largest pipe diameter for all kinds of pipe.

STYLE 40 Long Sleeves serve the same purpose as Style 38's, but are installed on widely separated pipe ends. Sizes: ½" I. D. to 24" O. D. inclusive.

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STYLE 52-A Sleeves repair welds, screw collars, splits, holes, etc. Inside length: 8". Maximum working pressure: 500 lbs. per sq. in. Sizes: 4" I. D. to 26" O. D. inclusive.

Style 73 Sleeves are used for the same purpose as Style 52-A, except maximum working pressure is 250 lbs. per sq. in. Inside length: 8". Sizes: 2" I. D. to 12" I. D. inclusive.

STYLE 26 Sleeves repair broken bells on cast iron pipe. Maximum working pressure: 150 lbs. per sq. in. Sizes: 3" to 24" inclusive.

Style 57 Sleeves are identical with Style 73, except made for cast iron pipe sizes. Maximum working pressure: 250 lbs. per sq. in. Sizes: 3" to 12" inclusive.

Multiple Installations of two or more Style 57 or 73 Split Sleeves, for repairs longer than 8", can be made with simple joiner parts.

Style 54-A Sleeves repair leaking joints of the bolted coupling type on steel pipe. Maximum working pressure: 500 lbs. per sq. in. Sizes: 2" I. D. to 26" O. D. inclusive.

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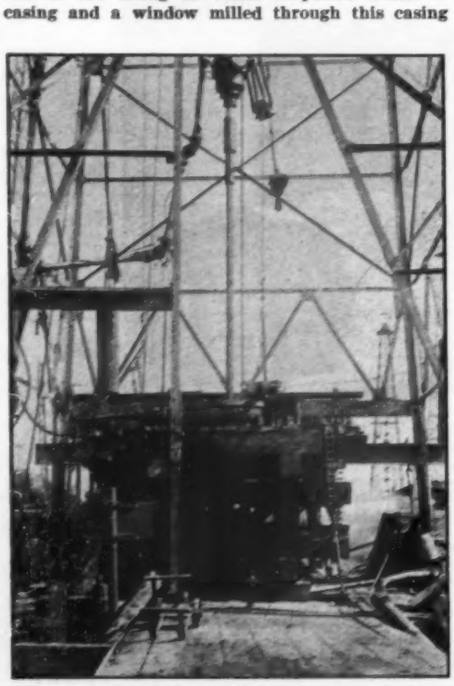
Pressure Control Drilling Enables the Completion of Oklahoma City Well

By L. G. E. BIGNELL

With formation pressures in the Wilcox sand zone in Oklahoma City relatively low it has been found advantageous to complete new wells using the pressure control method of drilling. By this method relatively little pressure is placed upon the producing formation by the drilling fluid and better wells are secured.

Since the Indian Territory Illuminating Oil Co. completed No. 1 Oklahoma City on December 4, 1928, as the discovery well of the Oklahoma City field there has been a great change in drilling and producing methods. On December 20 British American Oil Producing Co. completed their No. 1 Piersol, located in the SE SE SE section 22-12-3w about 800 feet northeast of the mansion of the chief executive of Oklahoma and within 2,500 feet of the east wing of the State Capitol Building. This well was completed by the pressure control method of drilling-in because the bottom-hole pressure in the Wilcox sand is about 500 pounds and if mud laden fluid had been used while drilling into the pay formation it is probable the well would have been nonproductive. When the original wells were drilled in the Oklahoma City field the formation pressure was about 2,660 pounds.

British American Oil Producing Co. have in addition to the No. 1 Piersol well four other wells drilling in this same area and three of them, No. 1 Mary Green and No. 2 Mary Green and No. 3 Piersol, are on top of the Wilcox sand and will probably be completed this week. The No. 1 Mary Green was drilled into the Wilcox sand found at 6,328 to 6,360 feet some time ago but in swabbing the hole the swab was stuck in the casing and could not be recovered. Later a whipstock was run in the string of 7-inch 14-pound Grade D casing and a window milled through this casing



Deep well in Oklahoma City field rigged up for drilling in by the pressure control method

from 6,225 to 6,237 feet. Trouble developed in attempting to drill out of this window and it was necessary to set a second whipstock and cut another window between 6,202 and 6,213 feet. Through this window about 150 feet of 5½-inch O.D. casing was set with packer inside of the 7-inch. The short string of 5½-inch casing is bottomed about 8 feet above the top of the Wilcox sand which will be drilled in by the pressure control method.

In addition to the wells of the British American Oil Producing Co. the Superior Oil Co. has two wells about ready to drill in and Russell Petroleum Co. drilled two wells to the depth at which the Wilcox sand has been found in No. 1 Piersol but failed to complete either tests as a producer. It is believed by some the Russell Petroleum Co.'s wells are east of the fault while others are of the opinion heavy mud used in drilling in has plugged the sand and prevented the wells producing.

The drilling of the British American Oil Producing Co. No. 1 Piersol is typical of the practice being followed in completing all wells in the Oklahoma City pool now the formation pressure is below 500 pounds, and the same practice is being followed in many of the completions in the Fitts pool. The No. 1 Piersol well was completed using the Southern States pressure control equipment and this company has successfully completed more than 25 wells in Oklahoma City extension zone. Pressure drilling has been covered in other articles published in The Oil and Gas Journal and while it is not new it is still in the development stage and worthy of further description.

No. 1 Piersol

No. 1 Piersol well was started October 21, 1935, and on October 22 1,000 feet of 13⅜-inch surface pipe was set and cemented. The hole was then reduced to 11¼-inch diameter and drilled to the top of the Wilcox found at 6,342 feet. Just above the Wilcox sand and at the base of the Pennsylvanian formations a limestone streak was encountered in lieu of the usual zone of detrital material. The limestone shell contained some heavy oil but not sufficient to be of commercial value so it was cased off to prevent it from contaminating the high grade Wilcox oil.

The string of 9⅝-inch Grade D casing was set at 6,342 feet about 2 feet in the top of the Wilcox sand and cemented with 1,500 sacks of cement. All the work on the well up to the time the string of 9⅝-inch casing was set and cemented was done with the regular heavy duty type steam driven rotary outfit.

While the cement was hardening the Otis square Kelly drilling head pressure control outfit was rigged up at the well. The regular drilling head was removed and in its place a 5,000-pound tested master gate was screwed on the top of the string of 9⅝-inch casing and immediately above this gate a heavy 9⅝-inch steel cross was placed. One side of this cross was closed with a bull plug but on the other side opening a string of 8-inch pipe was connected to conduct the production to the high pressure oil and gas separator set to receive it.

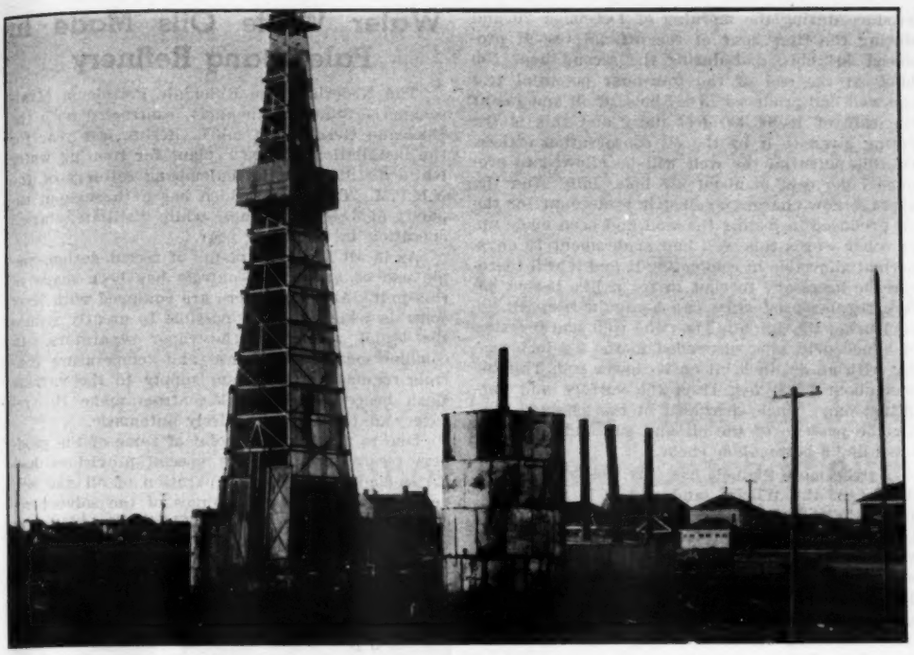
Above the 9⅝-inch cross another high duty master gate was installed and above the master gate a blowout preventer was placed. Then comes a short section of 9⅝-inch casing and a high pressure oil saver and immediately above the oil saver the Otis square Kelly packer is installed.

To make this installation it has been necessary to crib up on the derrick floor for a height of about 5 feet to provide a platform for the drillers and to support the rotary turntable, which is above the square Kelly packer. The Kelly is connected to a standpipe in one corner of the rig into which the oil used in drilling and the gas required to propel it are conducted. The oil is pumped through an auxiliary 10"x4½"x10" boiler feed pump and between the pump and the standpipe there is imposed a check valve to prevent oil or gas backing up on the pump. The gas used in this operation is supplied by a 400-pound high pressure line laid to the rig and all gas entering the standpipe is metered. Check valve is also provided in the gas line near the standpipe.

At this point it may be well to explain why this pressure drilling method has been found essential in completing these wells and why it is of

Hookup of small steam pump and oil tank used while drilling in No. 1 Piersol well in Oklahoma City Wilcox sand zone extension

advantage in completing any well where the formations are deeply buried and their rock pressures unknown. When the conventional rotary method is used mud fluid weighing from 9 to 14 pounds per gallon is used and this heavy fluid exerts high pressures against the face of the formation and



British American Oil Producing Company No. 1 Piersol well with the governor's mansion showing on NE Twenty-third Street, between derrick and flow tank, Oklahoma City pool

tends to squeeze water out of the mud and also to force mud into the pore space in the formation. If the formation is permeable and productive the mud finds more ready access into the pore spaces and even though the well may come in as a producer it seems probable some damage is done to the formation and the full capacity of the well is not secured.

Rotary mud serves its purpose in walling the sides of the hole as drilling progresses to the point above the producing formation. In the Oklahoma City field during its early life when formation pressures were high it was necessary to use very heavy mud when drilling in for the high pressure gas and oil had a tendency to break through and cause the well to come in out of control. Many wells in the field have come in out of control because of lack of regulation of the mud characteristics while drilling in and this led to special engineers being assigned to the duty of supervising mud mixing and use.

As more wells were drilled and the formation pressure dropped from the original 2,660 pounds per square inch to 1,000 and 1,200 pounds the mud was found to be too heavy for drilling in purposes and salt water was used for drilling in. As pressures continued to drop change was made to fresh water and then a specially prepared refined oil was introduced into the field for use in well completions. This oil was so refined as to resist gas cutting and it was circulated during the drilling in period and cuttings removed and the oil used over and over again.

Use of Cable Tools

Even special drilling oil created too heavy a pressure on the face of the producing formation as the pressures went lower and many operators then resorted to cable tools for drilling in purposes. By the time this very low pressure, less than 500 pounds per square inch, had been reached in the Wilcox sand zone practically all of the drilling in the area had been completed. New drilling zones were created within the city limits and when they were drilled it was found higher pressures existed in these wells and they were completed with the regular rotary equipment and heavy crude oil used as a circulating medium.

The success of this method was varied. Some wells responded very nicely and came in as 10,000- to 12,000-bbl. per day producers. Other wells came in originally as heavy producers of gas only, and later blew into oil but they were never as large in capacity as the wells better located on the structure. It is now known when heavy crude oil was used in some of the wells in the north extension zone to the Wilcox sand area this oil mixed with very fine particles of sand and under the hydrostatic pressure exerted by the column of oil above the producing formation some of this oily mud was forced into the pores in the sand. Some of these wells were later shot with a gun perforator and the steel bullets succeeded in penetrating this shell of oily mud and plugged sand pores and permitting the oil and gas in the formation to escape into the hole thus making the well a commercial producer.

Has Wide Application

When it was learned that drilling in with the conventional rotary equipment was not the best method to use in completing these deep Wilcox sand producers the operators turned to the pressure control method of well completion and practically every well in this zone has been completed by this method since last summer.

Where the pressure control method is used it is not necessary to create high pressures against the face of the producing formation and the velocity of the up-current of the oil carries the cuttings out of the hole quickly. While drilling in these cuttings consist for the most part of very fine Wilcox sand grains and they are therefore readily transported to the oil and gas separator at the surface into which the material discharges.

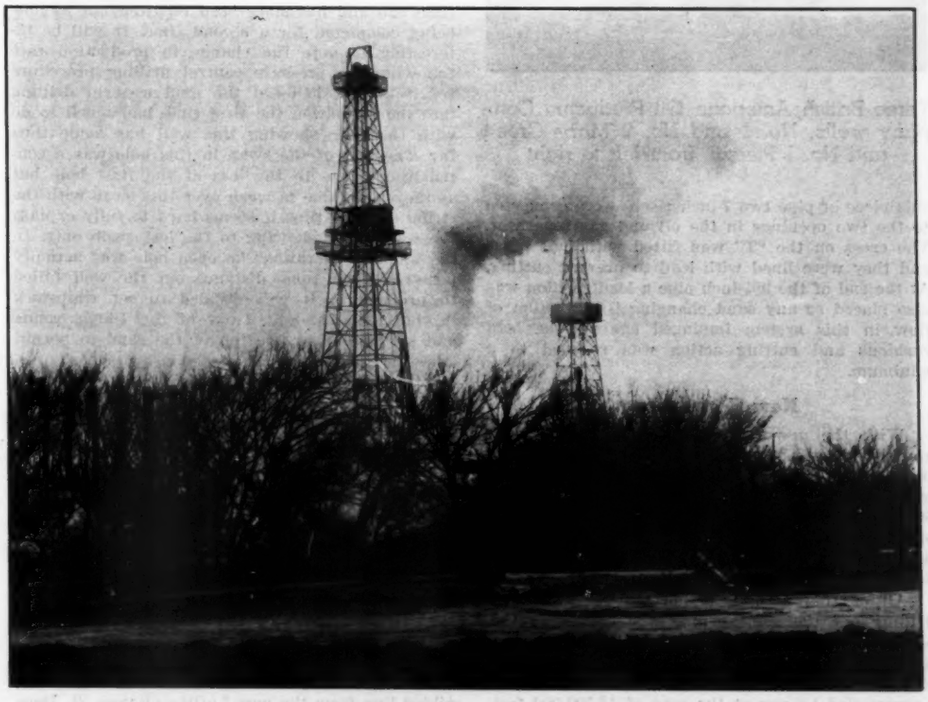
With this explanation of the reason why pressure control drilling is desirable for completing Wilcox sand wells in Oklahoma City field the details of bringing in British-American Oil Producing Co. No. 1 Piersol will be continued.

Control Equipment

With the pressure control equipment all in place and the two high pressure slush pumps held in reserve as standby units by means of which mud could be pumped into the hole if the well should get out of control and a 3-inch steam snuffer line also hooked into the well head connections as an additional safety measure a string of 3-inch drill pipe with an 8⅝-inch rotary bit was run into the hole. The cement plug was drilled and while this was being done oil and gas was admitted to the hole to remove the cuttings. About 20 bbls. of oil per hour was used and it was pumped into the upper connection on the Kelly through a steel hose equipped with flexible joints. For handling this oil and gas only the 10x4½x10-inch feed pump was used and it was found ample for the purpose.

When the cement had been drilled out of the bottom of the casing and the hole penetrated the upper part of the Wilcox sand gas from the formation broke into the well and a flow of 27,000,000 feet per day was encountered for a time. The upper part of the formation contained gas only but as the drill penetrated to a depth of about 10 feet below the bottom of the casing oil was encountered and started to flow into the well in ever-increasing volume. As the flow of oil increased the volume of gas produced diminished until the well was only making about 18,500,000 feet of gas, daily rate, and producing several hundreds of barrels of oil per hour.

Along with this oil and gas a large quantity of sand was produced and this sand cut into the lead pipe between casinghead and the separator at two places where the pipe had been welded to permit connections being made at the higher elevation on the side of the oil and gas separator. This 8-inch pipe led horizontally out from the cross for a short distance and then upward to reach the level



Superior Oil Company No. 2 Sibley and British American Oil Producing Company No. 5 Piersol, two wells nearing completion in north extension to Oklahoma City pool

of the connection in the trap as two angles were produced in the lead line and at these turns the sand had a tendency to cut out the pipe.

As the well was deepened to the total depth of 6,362 feet, or about 20 feet into the Wilcox sand, the quantity of sand produced increased and at the same time the pressure at the well head built up to nearly 500 pounds. This pressure was high enough to cause some gas to escape around the packer on the square Kelly and because of the location of the well and its proximity to residential property it was decided to shut it down and bring it under control before deepening further.

To temporarily kill the well heavy crude oil was pumped into the hole and this exerted sufficient pressure against the formation to cut off the flow of oil and gas. It was then possible to lift the string of drill pipe up from the bottom of the well about 400 feet where it was left suspended while the connections at the well head were changed.

With the drill pipe up in the hole and the well under control it was possible to remove the cut lead pipe between the cross and oil and gas separator and substitute a piece of 9⅝-inch Grade D casing. This section of pipe ran from the cross to near the base of the separator where a "T" connection of 9⅝-inch casing was welded and out of

Three British American Oil Producing Company wells, No. 1 and No. 2 Mary Green and No. 1 Piersol, from left to right

this piece of pipe two 7-inch risers were connected to the two openings in the oil and gas separator. The cross on the "T" was fitted with bull plugs and they were lined with lead to prevent cutting. At the end of the 9⅝-inch pipe a lead cushion was also placed so any sand changing its direction of flow in this system impinged against the lead cushions and cutting action was reduced to a minimum.

New Connections

With the new connection between well head and separator in place the drill pipe was again run in to permit gas to be forced into the hole to remove the heavy oil. This gas was under nearly 500-pound pressure at the well head and the heavy oil was blown out of the well and as it was removed the formation again began to produce gas and oil.

All of this work occupied the time between drilling out the cement plug and deepening the hole to 6,362 feet and about 5 a.m. on the morning of December 20 when the well actually began to flow oil at the rate of about 500 bbls. per hour accompanied by gas at the rate of 18,500,000 feet daily. With everything ready for the taking of a potential test the well was allowed to continue to produce during the morning of December 20 and during the first hour of the official test it produced 504 bbls. and during the second hour 599 bbls. At the end of the four-hour potential test the well had produced 13,647 bbls. of oil and gas at the rate of 18,500,000 feet daily and this is the rating given to it by the oil conservation officer. Of this potential the well will be allowed to produce 7 per cent or about 955 bbls. daily after the overage now charged against it to account for the oil produced in testing the well had been made up. In other words this well had made about 15 days' normal allowable in completing it and it will therefore be necessary to shut in for a like period before regular production can be again resumed.

During the potential test the well had a string of 3-inch drill pipe suspended in the 9⅝-inch casing with an 8⅝-inch bit on its lower end. This bit was about 5,600 feet from the surface and permitted only 1-inch clearance in the 9⅝-inch pipe for the passage of the oil and gas and therefore acted like a bottom-hole choke.

Furthermore the hole has only penetrated about 20 feet of the Wilcox sand and it is planned to drill into this formation about 100 feet further. This deepening will probably be done while the well is shut in making up on overage and it will be interesting to note the change taking place with the deepening. As potential has been taken already it is not anticipated another test will be made after deepening but the true capacity of this section of the Wilcox to produce will be learned and this information will be an advantage in completing the other wells in this area.

The oil is being delivered to the Sinclair Pipe Line Co. and the gas taken by the Phillips Petroleum Co. One outstanding accomplishment in completing this well was the complete lack of any waste of either gas or oil and the successful manner in which all operations were carried out. As a precautionary measure the three sides of the derrick facing the Governor's Mansion and other residential property and the road were covered with corrugated iron.

The next group of wells to be completed in this extension to the Wilcox zone will be handled with the Otis pressure control method and five of them are being drilled in this week and with their completion much will be learned of this Wilcox sand section more than 1½ miles north of the nearest production in the extension to the drilling zone into the residential district southeast of the State Capitol Building.

The British-American Oil Producing Co. No. 1 Mary Green was drilled into the Wilcox sand some time ago and has since been repaired and is now being completed for a second time. It will be interesting to note the change in production rate following the pressure control drilling procedure for it is now believed the mud used in drilling into the formation the first time had much to do with the poor showing this well has made thus far. The loss of the swab in this hole was a contributing cause to the loss of the first hole but as they were able to wash over this swab with the string of wash pipe it seems hard to fully explain the well's poor showing to the lost swab only. In the washing operation the open hole was actually penetrated for some distance but the well failed to produce so it was decided to set whipstock in the casing and drill out of the 7-inch casing and set liner near the top of the sand to permit a second completion of the well by use of pressure control method this time.

The value of pressure control drilling is being demonstrated in these low formation pressures and while the Wilcox sand shows a pressure of about 500 pounds per square inch in No. 1 Piersol it is reported to be lower than 200 pounds in the extension of this zone further south within the city limits. Wells there are not successfully completed without pressure control and even then it is noted the formation pressures drop rapidly as the wells are produced.

Lafitte Line Completed

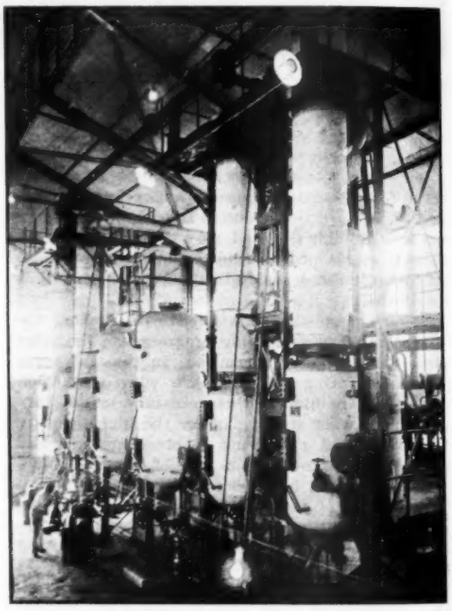
HOUSTON, Tex., Dec. 23.—The Texas Pipe Line Co. has just completed laying 26 miles of 6-inch welded line from the new Lafitte (Bayou St. Dennis) field, Jefferson Parish, Coastal Louisiana, to Marrero, just south of New Orleans.

Water White Oils Made In Palembang Refinery

The Nederlandsche Koloniale Petroleum Maatschappij (Standard-Vacuum), contracted with the Edeleanu Gesellschaft mbH., Berlin, last year for the installation of a new plant for treating water white distillate in the Palembang refinery of the N.K.P.M. The plant, which has a throughput capacity of 3,850 bbls. water white distillate, started operation in July this year.

As in all Edeleanu plants of recent design, ample use of automatic controls has been made in this unit. All evaporators are equipped with level controls which made it possible to greatly reduce the liquid volume of the vapor separators. In combination with pressure and temperature controls regulating the steam supply to the various flash heaters these level controls make the recovery of the solvent entirely automatic.

Due to the low flashpoint of some of the products treated in the plant special provisions had to be made for a close separation of oil and solvent. The low pressure stages of the solvent recovery systems are equipped with fractionating columns which are charged with SO_2 reflux for a complete removal of the low boiling oil-fraction



Treating tower and combined stock and SO2 cooler of the Edeleanu treating unit at the Palembang, Sumatra, refinery of Nederlandsche Koloniale Petroleum Maatschappij

from the SO_2 gas. In the vacuum evaporators SO_2-containing extract and raffinate is used for refluxing the light ends.

The stock is precooled by heat exchange with cold product and then cooled down to treating temperature in a coil placed in the solvent cooling tank in which the treating temperature of the SO_2 is adjusted by means of expanding a portion of the solvent. The treater is of the tower type for counter current extraction. This treating tower is under a liquid pressure sufficiently high so that the extraction products flow over into the respective solvent recovery systems without the aid of surge drums and pumps. All equipment for heat exchange is of the shell and tube type. The solvent condensers are of the open vertical tubular design which greatly facilitates the removal of scale from the tubes.

Bardhill's Correction Tables

A complete and well arranged series of volume correction tables for oil have been conveniently arranged typographically in a strongly bound booklet by O. H. Bardhill of 3812 Fifteenth Avenue, Minneapolis, Minn. The tables cover direct readings for volumes from 10 to 30,000 gallons and temperatures from —45° F. to +154° F.

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How much the 1936 gasoline season means to you—in gallonage and in dollars—will depend on how much Dubbs-cracked gasoline you have to sell

More Dubbscracking will make 1936 a better year for refiners, for marketers and for motorists

Happy New Year

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

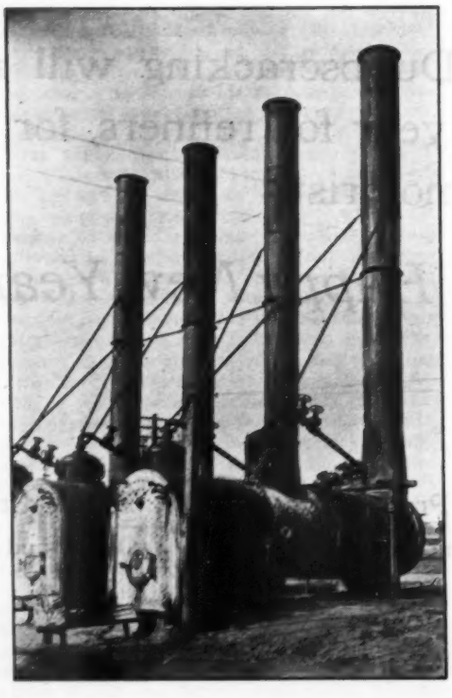
OPERATING IDEAS

Hoist Arm for Removing Heads

To facilitate handling the heavy engine heads whenever it becomes necessary to remove them one natural gasoline plant operator has installed the hoist arm shown in the accompanying photograph. Eyelets were welded to each of the exhaust chambers so that the arm can be easily attached thus doing away with the necessity of having an overhead traveling crane. A 1-inch pin is used to hold the hoist arm in place, the pin extending through the eyelets and a pipe welded to the beam thus forming a hinge connection. A chain hoist is used to lower the heads after they have been removed from either of the two cylinders.

Bracing Boiler Stacks

A device for eliminating guy wires on boilers has been designed by one oil company operating in the Mid-Continent. As shown in the accompanying picture, the device consists of using steel pipe bolted to the stacks and boilers. In this instance 1½inch was used, the pipe being bolted to straps attached to the stacks and the other end bolted to the dome flange. The stacks are also connected horizontally by a series of braces between each of the stacks, the brace being fastened to the stack by means of a collar. This means of bracing stacks has proved to be very successful, especially so where the boilers are grouped into units of three or more, thus affording better cross-bracing and reducing the amount of bracing required. In town lot drilling where the space for boiler setting and guy wires fastening is limited, this means of bracing may be used with a decided advantage.



Paraffin Solvent Lubricator Operated by Gas Intermitter

As a means of combating paraffin formation one operator in the Oklahoma City field devised the lubricator shown here, the lubricator being operated by a gas intermitter. The particular well for which it was devised had a very bad paraffin condition requiring about 2 gallons of paraffin solvent mixed with a barrel of crude every 24 hours. The lubricator was constructed large enough to hold this amount of treating fluid so that after the chamber was filled and the flow adjusted the system required little or no attention until the following day. The fluid is discharged through the line shown on the right, the line being equipped with a valve and sight feeder so that the rate of feed of the solvent can be closely regulated. The large pipe into which the feed line flows leads up to near the top of the chamber above the fluid, thus equalizing the chamber pressure to that within the line.

Steam Coil for Drilling Rig

One drilling crew working on a well located in an extremely exposed position constructed the steam coil shown in the accompanying photograph. Small second-hand pipe was used in rigging up this hand-made heater, while scrap iron was used in making the supports. Heat is applied by taking steam from the power line passing under the derrick floor. The coils were installed on the derrick floor near the driller post, being placed so that the heat radiated would warm the area near the crew.

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ORDINARY PUMPS WON'T DO

Hot Oil or Cold Oil—Heavy Oil or Light Oil—Crude Oil or Gasoline—Tar or Acids—each requires a pump specially adapted for handling the particular liquid.

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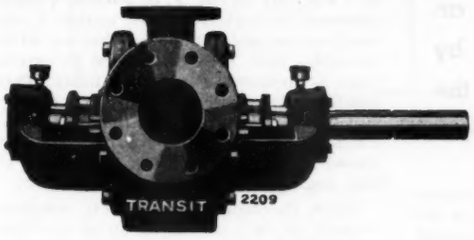
It stands to reason that a company with all this specialized experience will produce pumps best suited for the oil field, oil pipe line and oil refinery. And because of this you will find TRANSIT PUMPS in Russia, South America, France—wherever oil is produced or refined.

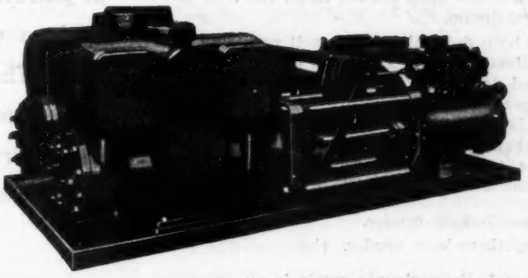
Below we list a few representative types.

TRANSIT PUMPS



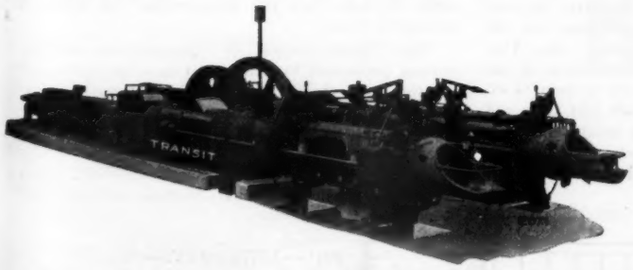
ROTARY PUMPS

A high vacuum, self-priming, sliding vane type of pump for 100 pounds working pressure. Furnished in six sizes for 25, 50, 100, 200, 300 and 500 gallons per minute. So constructed as to make them almost universal in application. Adapted to any style of drive.



BLOCK VALVE TYPE

These pumps are of a special design with extra deep stuffing boxes. Regardless of the heat of the liquid pumped there is no trouble from expansion. They are used extensively for pumping out stills, pumping hot tar, residuum or other heavy semi-liquids, and for pumping very hot (650°F.) or cold liquids or semi-liquids. Furnished as direct acting steam pumps, and for power drive in any size required.

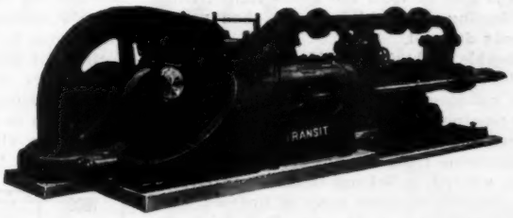


GAS ENGINE DRIVEN HOT OIL PUMPS

Refining costs can be reduced with this TRANSIT combination 17x24″ four-cycle twin gas engine back-geared to a Horizontal Duplex Outside End Packed Hot Oil Pump with forged steel liquid cylinders, because it uses the cheapest of all fuels—refinery gas.

Many installations of this type are in daily operation. They are the most efficient and economical hot oil pumping units by far.

Steam and power driven hot oil pumps are also furnished in any size to suit your requirements.



TEXAS TYPE

The Texas type power pump illustrated above is regarded very highly by many experienced pipe line men because it overcomes so many of the little annoyances found in pumps less adapted to pipe line work. The liquid pumped travels through short direct passages of liberal area, and of easy turns and bends in a natural way without the objectionable "churning" so often experienced with ill adapted pumps.

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Solutions of Gases Used as Selective Solvents for Products of Petroleum

By Marjan Godlewics and Stanislaw Pilat
Petroleum Laboratory of Polytechnic Institute of Lwow

A new method for separation of mineral oils into fractions of different properties is described; the fractionation being accomplished by saturating solutions of petroleum cuts in light hydrocarbon with gases under pressure. The translation of this article has been undertaken by the Petroleum Division of the American Chemical Society.

One of the basic processes for the reduction of crude petroleum is distillation. Because of their stability, the distillation of gasoline, heavier naphthas, and gas oil, present no difficulty. However, during distillation the heavy hydrocarbons, because they are less stable at their boiling points, may undergo significant chemical changes. For decades the efforts of chemists have been directed toward the development of a method of distillation which would result in the least possible breaking down of the oils. The latest technical development is pipe distillation (1) the success of which depends upon cutting down the time factor to a minimum.

It has been determined that well regulated distillation alone does not suffice to obtain oils with the desired properties, but rather that such properties depend upon the nature of the crude oil. Thus the best distillation method cannot yield better oils than are contained in the basic crudes. Americans (2) classified crudes with respect to their technical value as:

1. Paraffin-base crudes.
2. Naphthene-base crudes. (b)

Of Class 1, Pennsylvania crude is an example and of Class 2, the Mexican oils. All other oils are included within these extremes and are known as "mixed-base" oils.

Mixed-base crudes are most prevalent and their characteristics reappear in all fractions regardless of the distillation method employed.

The extraction of valuable oils from distillates or from the residue of mixed-base crudes has become a leading problem of recent years.

Figures show that automobiles use 2 kg. of lubricating oil with every 100 kg. of gasoline. The ratio of lubricating oil to gasoline available in crude oils is greater than the above figure, hence more lubricating oil could be made than normal requirements demand.

It is possible to obtain valuable oils from mixed-base crudes only by differential solution of distillates or residues.

Before passing on to the problem of differential solvents, we shall describe briefly how it is possible to determine from the physical properties of a given oil, whether it belongs to the Pennsylvania type or to the less valuable types of hydrocarbons.

A useful criterion is the so-called "viscosity curve" which shows the relation between changes in viscosity and temperature. Diagram 1 represents the curves of viscosity for two oils, having approximately the same viscosity at 100 degrees. The upper, or so-called "high-curve" is characteristic of Mexican oils and the lower one is typical of Pennsylvania oils. The oil represented by the upper curve was obtained by extraction of Harklow oil residue with chlorex while oil for the lower curve resulted from extraction of Boryslaw residue with propane-methane. In general, those oils having the shallowest viscosity curves showing the least change in viscosity with change in temperature are most desirable. Oils used in automobile and airplane motors must have great fluidity at ordinary temperatures, that is, at the time of starting a motor and should retain their lubricating qualities at the higher temperatures while the motors are operating. Oils with a low viscosity curve usually possess other characteristic properties such as freedom from oxidation and from formation of carbon.

Many attempts have been made to express viscosity curves mathematically but only certain ones have proved practical. The most generally accepted ones are: the logarithmic system of Walther; the viscosity indices of Dean and Davis; and the viscosity gravity constant system of Hill and Coates.

Walther (5, 6, 7) plots the double logarithms of the kinematic viscosity as ordinates against the logarithms of absolute temperature as abscissae and obtains nearly a straight line. Diagram 2 represents Walther's interpretation of the oils shown in Diagram 1. Walther's system is effective for many practical purposes but it is not satisfactory when applied to the analysis of results of differential solution, when a comparison must often be made between oils having great differences in viscosity.

However, this difficulty was largely obviated

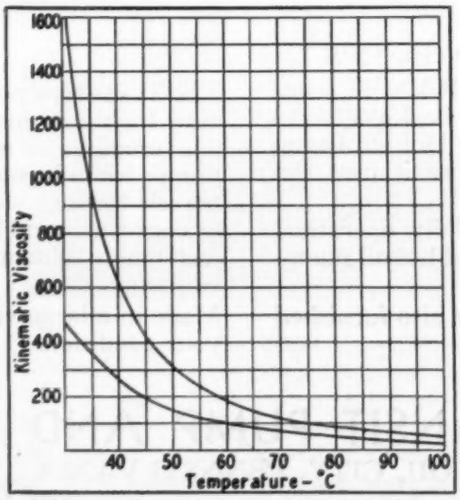

Diagram 1—Viscosity curve showing relation between temperature and viscosity

in Dean and Davis' (8) empirical system of viscosity indices. These men experimented with characteristic Pennsylvania and Mexican crudes. Assigning a value of 100 to the index of Pennsylvania oils, and 0 to the index of Mexican oils, they compiled a chart based upon viscosity measurements of many 100 and 0 index oils at 100° F. and 210° F.

By simple calculation or by reference to the formula:

$$V.I. = \frac{L - U}{L - H} \times 100$$

(where L = viscosity at 100° F. for 0-oils, U = viscosity of the oil under investigation at 100° F., H = viscosity at 100° F. of 100-oils. Viscosities are expressed in Saybolt degrees, so that L and H are read from the table) it appears that any oil for which viscosities have been determined at two temperatures is assigned a viscosity index. This index usually lies between 100 and 0 but oils of flatter viscosity-temperature curves than the Pennsylvania standard have values above 100; oils of steeper viscosity-temperature curves than the 0 standard have negative indices.

Since the indices are entirely independent of viscosity as such, we may compare spindle oil with cylinder oil and having found for each an index, (for example), of 100, they may be classed as Pennsylvania oils.

Larsen and Schwaderer (10) considered as a scale of 100 units as too extensive, and shortened the whole scale to 13 units, besides submitting directions for the interpolation of intermediate viscosities, and for determining the temperature at which the oil reaches a viscosity of 50,000 seconds Saybolt, i.e., the temperature at which it ceases to flow.

The third method of interpreting viscosity curves, presented by Hill and Coats (11), is based on the fact that Pennsylvania oils have appreciably lower densities than Mexican oils.

They discovered a mathematical relation (d) between specific gravity at 60° F. and viscosity at 100° F., expressed in seconds Saybolt. From these values the so-called viscosity-gravity constant can be computed.

$$VG = \frac{10D - 1.0752 \log (V. - 38)}{10 - \log (V. - 38)} \qquad (d)$$

$$VG = \frac{D - 0.24 - 0.022 \log (V_2 - 35.5)}{0.755}$$

D is specific gravity at 60° F., V is viscosity in Saybolt degrees at 100° F., V_2 is viscosity at 210° F.

The second equation (d) allows a computation of the same constant from the specific gravity and viscosity at 210° F. This constant is about 0.800 for Pennsylvania oils, and 0.900 for Mexican oils. From our observations on Malopolska oils, the values of the constant calculated for both 100° and 210° F., give good checks (1—4 per cent variation). Greater differences were observed with the heavier oils, and may be attributed to experimental error.

The relation between viscosity index and viscosity gravity constant was studied by McCluer and Fenske (12), who drew a curve from which the viscosity-gravity constant could be read opposite the corresponding viscosity index. However, according to them, this connection exists only for natural oils, for large discrepancies were observed

Note (a) One of the authors submitted this work at a meeting of the Polish Chemical Society in Warsaw. (b) The terms "paraffin-base oil" and "naphthene-base oil" introduced by Americans, do not coincide with the technical division into paraffin oils and paraffin-free oils, but are entirely conventional. (3) Thus, according to the American terminology, Malopolska oil from Grabownica, which is a typical paraffin-free oil, must be known as an oil with a greater paraffinicity than, for example, Boryslaw oil.

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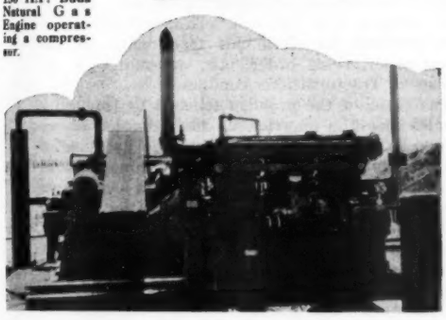

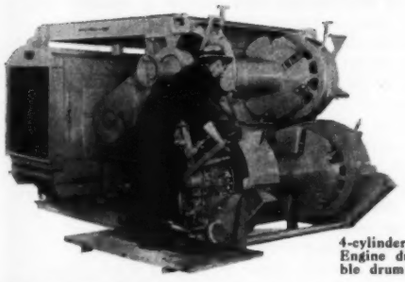

4-cylinder Buda Diesel Engine driving a double drum hoist.

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Buda offers you an engine size for every problem—for Gasoline, Natural Gas, Diesel, or Butane. Buda Diesel Engines are compact and with their special type of combustion system and wide speed range they are particularly suited to the oil field problems requiring Diesel power.

Buda Natural Gas and Gasoline engines have been developed particularly for oil field service. Manifolds are water-jacketed, spark plugs are covered and full protection from high heats, backfire or ignition is assured.

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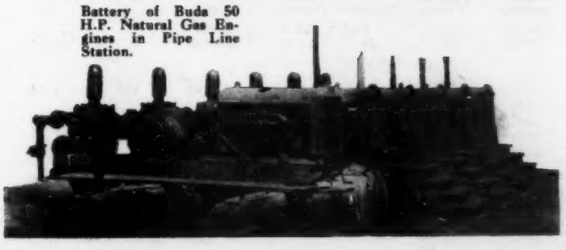
Y.R.-425, 40 H.P. Buda Gas Engine pumping well approximately 4000 ft. deep. Production nearly 400 barrels a day.

Two 175 H.P. Buda Diesel Engines operating a Wilson Giant Model Skid Type Portable Drilling Rig owned by the Eppenauer Drilling Co., San Angelo, Texas.

Battery of Buda 50 H.P. Natural Gas Engines in Pipe Line Station.



with oils made synthetically by the condensation of olefins.

In our opinion the relation between V.I. and V.G. depends much on the nature of the oil itself. In the course of our tests on Malopolska oils, we found many examples where oils differing little or not at all in V.I. were widely variant in V.G. or vice versa.

Following is an example of two similar oils, whose viscosity-gravity constants are nearly the same, but whose viscosity indices differ by 60 units.

White oil (liquid paraffin): spec. grav. 0.8795; viscosity 3.18° E. at 50° C.; V.I. 36; V.G. 0.825 at 100° F., and 0.821 at 210° F.

Oil obtained from Boryslaw residue by selective solution with propane-methane: spec. grav. 0.886; viscosity 7.01° E. at 50° C.; V.I. 96; V.G. 0.819 at 100° F., and 0.815 at 210° F.

Obviously the viscosity-gravity constant does not give a graph of viscosity. However, it is no less a numerical indication of the properties of the oil. Those oils from the same crude giving lower constants must be regarded as the better oils. This judgment is based on the observation, witnessed in several instances, that while the removal of coloring substances from oil residue caused no increase in viscosity index, it improved the viscosity-gravity constant.

Therefore, in our work we shall use both values for evaluating the oils. We calculated the viscosity-gravity constant from the viscosity both at 100° F. and 210° F., which aided in eliminating incidental errors. American works, use either the constant or the viscosity index.

The problem of extracting petroleum products with partially dissolving agents is old. Among a host of solvents for cold fractionating, which Gurwitsch (13) cites: are ethyl alcohol, amyl alcohol in combination with ethyl alcohol, acetone and liquid SO_2. The last should be regarded as the first solvent adaptable for industrial purposes.

Solvent Extraction

In Poland the extraction of petroleum products with solvents was the subject of several patents. For instance, Polish patent 2,695 uses creosol as a means for removing paraffin. Differential solution depends on the fact that some constituents of oil dissolve more readily than others in a given agent. By treating oils with such an agent a displacement of concentration of certain hydrocarbons is caused.

Besides being adaptable in practice, a solvent must have great selectivity, i.e., be capable of appreciably fine separation of Pennsylvania-type oils from cheap crude.

A very likely assumption is made, that all crudes contain a certain amount of hydrocarbons of the Pennsylvania oil type, whose removal is the object of the extraction.

Besides great selectivity, technical solvents must have a variety of attributes, such as (14); low cost, ease of recovery, absence of poisonousness, applicability to a variety of oils.

Deserving of mention is the research of Ferris and coworkers (21) which constitutes an examination of 110 organic solvents of various series. The report of the World Petroleum Congress in London in 1933 (16) includes many interesting details about differential solution.

We have divided solvents into two classes:

1. Solvents which dissolve readily those compounds which we wish to reject. These are good solvents for asphalts, coloring matter, unsaturated hydrocarbons and such; however, they dissolve very little of the hydrocarbons of Pennsylvania-type oil. To this class belong croton aldehyde, acrolein, furfural, SO_2 followed by a solution of SO_2 with benzol, nitrobenzol, chlorex, (dichloroethyl ether), acetone, phenol and creosol.

2. The light hydrocarbons, with propane at the head (17). The principle on which the light hydrocarbons work is different from that of the above solvents since light hydrocarbons separate out asphaltic substances and so are poor solvents for the compounds which we wish to remove. The function of the light hydrocarbons is thus the refining of products containing asphalt. Examples are the Dusol process (14) and self-refrigeration (15), which introduce low temperature as a method of dewaxing.

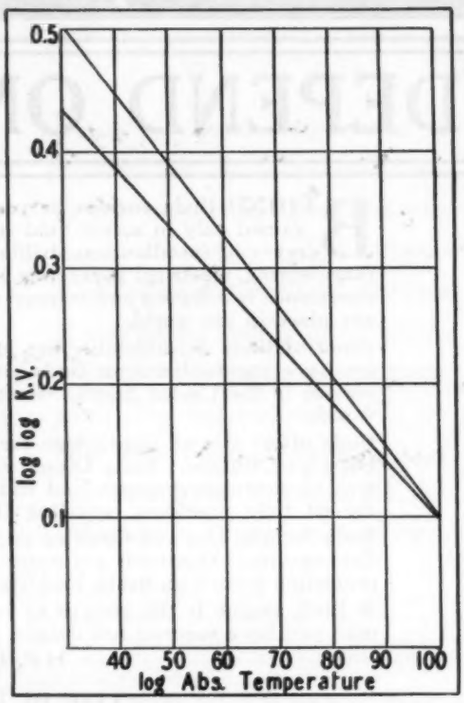


Diagram 2—Graph of viscosity according to Walther

The first patent in this field was the Methane Corp.'s Polish patent No. 1,029, work of Prof. K. Kling claiming a solution of hydrocarbons boiling at lower than room temperature as a means of precipitating asphalt. On this principle depend also the patents of I.G. Farben-industrie, which specify solutions of light hydrocarbons containing one of the first three members of the methane series.

The starting point of our work was the Polish patent 1,029 mentioned above; at that time we did not know of the patent of I.G. Farben-industrie.

By the use of commercial propane containing butane and pentane we effected the removal of half of the asphaltic substances from oil residues. (e) Then experiments were conducted using methane dissolved (under pressure) in propane as the agent for separating out the remaining coloring matter, according to the observation that the lighter the hydrocarbon used to remove the asphaltic substances, the more quantitative was the separation effected. In reality, methane dissolved in propane under a pressure of about 50 atm., proved it to be an excellent agent for the separation of the remaining coloring matter.

It was interesting to investigate what would happen if after removing the coloring matter, we increased the concentration of methane in the propane. Under these conditions methane actually showed the unusual property of causing a division of the oils into definite fractions of differing properties. In other words, a new fractionating agent had been found which permitted special fractions of hydrocarbons to be separated from propane solutions, by a method similar to distillation, but differing from distillation in that the entire fractionation took place in the cold.

On this discovery was based the first extraction of petroleum products by the cold method.

As may be seen from the data presented below, this method allows us to take the oil fractions directly from the crude petroleum and to obtain them in the state in which they are actually present in the crude, without using high temperatures whose effect is little understood at present.

(e) By oil residue we mean the product obtained from petroleum after distilling away gasoline, heavier naphtha, gas oil, and finally a part of the oil distillates.

Classification of Oils

All the ingredients of petroleum may thus be classified into the continuous series starting with asphalt, through coloring substances, to heavy, medium, and light oils. Products obtained in this manner we shall call fractionates.

Every one of the fractionates obtained may be further fractionated as often as desired, and refined without any chemical changes whatsoever. Such products we shall call fractionates of the second order, third order, etc., depending on the number of fractionations conducted.

The scope of the problem touched by this work includes also the question of the behavior of petroleum in its natural bed, where the pressure of methane approaches that which we found useful for removing certain ingredients from petroleum. Since in the natural bed the concentration of propane, which is absolutely necessary for fractionation, is usually relatively small, we assume that the processes of fractionation of petroleum in the ground can be carried on only to a limited extent.

This work casts an entirely new light on the process of distillation, and allows a measure of the difference between fractionating by solution and fractionation dependent on vapor pressure.

In the field of refining by sulfuric acid, this work opens up a new line of research.

Before we proceed to a systematic account of experiments, we shall pause over considerations of a physico-chemical nature.

The underlying basis of this work was the fact that when the asphalts are precipitated by the propane, the dissolving methane causes the separation of coloring matter, and then in order, heavy, medium, and light oils. The question arises, could we not predict these results by a consideration of some other properties of methane. On the graph (19) of the solubility of methane in various hydrocarbons (Diagram 3), we see that the solubility lessens with an increase in molecular weight of the hydrocarbon being used, and is, therefore, greatest in propane, less in hexane, and least in gas oil.

Likewise, it is less in benzol than in cyclo-

TABLE 1—HARKLOW RESIDUE; SPECIFIC GRAVITY 0.964; $V_{100} = 5.51$; FLASHPOINT 217; POURPOINT —7; PROPANE-BUTANE: 89 PER CENT C_3H_8, 11 PER CENT C_4H_{10}

Wgt. of sample	Volume of propane-butane	Pressure	Yield Per cent	D 15.6	Visc. 50° °E	Visc. 98.9° 1210° F.I. °E	V.I.	V.G.	Pourpoint	Flashpoint	Acid No.	Saponification value	Conradson No. in per cent	Mol wgt.	Name	Coloring Yellow	Coloring Red
10,300	69 L.	8 atm.	20.9	1.026	...	....	..	.....	....	256	1.67	....	....	...	Asphalt	..	....
6,143	69 L.	40	15.5	0.9905	...	19.4	..	0.912	+6	235	1.1	1.9	8.4	548	Coloring matter	..	....
.....	....	50	7.4	0.9705	175	8.64	..	0.896	—1	223	0.98	1.37	4.7	528	Intermed. between subst. and their dyes	..	....
.....	....	70	20.9	0.947	42	3.95	44	{0.875 / 0.877}	+3	225	0.55	0.72	1.7	464	Heavy oil	45	33.4
.....	....	100	18.9	0.9275	15.27	2.34	44	{0.862 / 0.863}	—6	216	0.28	0.58	0.44	439	Medium	35	7.25
Above	100	atm.	25.0	0.9055	4.26	1.55	51	{0.854 / 0.852}	—18 fluid	181	0.08	0.30	0.06	377	Light	15	1.75

hexane, and less in the latter than in normal hexane.

We may then generalize from this graph, that the solubility of methane decreases with an increase in molecular weight of the hydrocarbon being used, is less in aromatics than in the corresponding naphthenes, and less in these than in paraffin hydrocarbons.

From this graph we may conclude that those hydrocarbons should be separated by methane which are themselves poor solvents for methane, and first, all high molecular weight compounds, then successfully aromatics, naphthenes, and the paraffins.

An analogy is found in the adjustment between two immiscible liquids: if liquid A is a poor solvent for liquid B, then reciprocally, liquid B will be a poor solvent for liquid A.

Similarly, if some compound is a poor solvent for methane, and then, methane is introduced into a solution of that compound, propane for example, the compound will be separated from the solution. This assumption required experimental confirmation.

Action of Hydrogen

If it be authentic, then we should expect results similar to those with methane when other gasses which have a graph of solubility similar to that of methane were used. Such a gas is hydrogen and we have actually shown by experiment that the action of hydrogen is similar to the action of methane. However, since the solubility of hydrogen in propane is appreciably less than that of methane, appreciably higher pressures must be applied when using hydrogen in order to secure the small results as with methane. We found that 120 atm. of hydrogen gives the same separation of heavy compounds as about 30 atm. of gas from Dasawa. In this experiment we used coloring matter obtained from Harklow residues.

Liquids which are very poor solvents for methane, such as nitrobenzol and aniline, actually separate from a saturated solution in propane by the action of impressed methane.

Now we shall proceed to an account of the experiments.

The crudes for these tests came from the Government Mineral Oil Plant in Drohobyez. The propane-butane was rectified on the stabilizers of the firm "Malopolska" in Boryslaw. The analyses of the propane-butane were conducted with a Podbielniak apparatus. Instead of methane, cold, dry gas from Daszaw which has a high percentage of methane, was used.

The procedure was as follows:

A weighed sample (e.g. crude, residuum, or distillate) was placed in 4- or 30-liter pressure apparatus, which had an observation glass and scale, in amounts approximately as designated in the method of refining by liquid SO_2 (according to Edeleanu). Great accuracy was observed in weighing. After thorough stirring, the clear propane solution was transferred to another steel capable of withstanding 150 atm. pressure. For this purpose we used flasks made for storage of gases under pressure, with a regular "Perun" valve attached. In these flasks saturation with cold gas under pressure took place. The separating oil phase, having a high density, was let out at the bottom by opening the valve. The cold compressed gas was conducted from the compressor

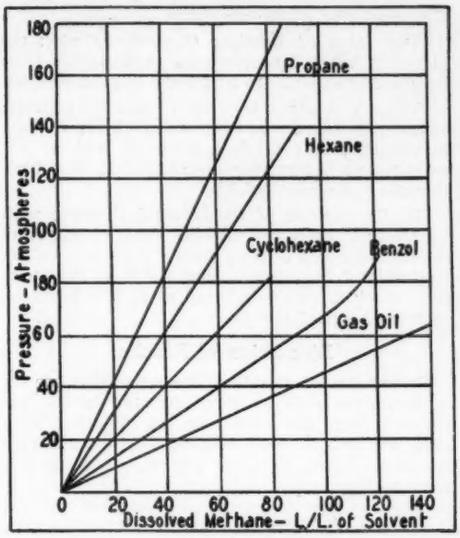


Diagram 3—Solubility of methane in various hydrocarbons

to the flask through an intermediate half-liter container with a manometer, from which pressures were read as the working pressures of the experiments.

This intervening jacket prevented the possibility of oil from the compressor getting into the propane-butane solution.

The experiments were carried out in 2-, 10- and 50-liter flasks. During the experiment with the 2-liter measure, the increase in weight for each increase in pressure was noted, and also the decrease for each drawing of product. The figures thus obtained gave us approximately quantitative relations of the process.

In the first experiments on determination of weights we noted the following peculiarity: if we plotted increase in weight as abscissae and increase in pressure as ordinates, at a certain point a sudden bending of the curve characterized the following condition:

Large increases of pressure cause unproportionally small increases in weight. Evidently the solution of methane is accompanied at first by an increase in volume of the liquid, the latter having a definite relation to the concentration of methane. A sufficiently great pressure causes filling up of the flask, and under these conditions we can apply pressure to the liquid but cannot cause a further increase in the amount of methane in the flask. This explains the sudden bend of the curve. Attention is brought to the same point by an American publication on the subject of balance in the arrangement of hydrocarbons (20).

Quantitatively, (f) it seems that about 240 gm. of methane dissolved in one liter of propane under a pressure of about 130 atm., causing an increase of about a liter in liquid volume. It follows that we can also speak of the density of the methane dissolved in the propane.

It is evident from the above that, wishing to work at a final pressure of 100 atm., we should not fill the containers to more than half of their volume.

We now give four examples to illustrate the effects of this method of refining:

1. Harklow crude, Table 1, 10,300 g. of about 45 per cent residuum of Harklow oil. Sixty-nine liters of propane was divided into three portions. Reasonably similar conditions of experiment were maintained for each portion. The concentration of the solutions after removal of asphalt were as follows: 4.1, 4.3, 4.4 parts by weight of propane-butane to one part of oil. The values given in Table 1 represents the average of the three experiments.

Contains Propane

Similarly conducted experiments in 2-liter apparatus showed that the fractionates removed contained a certain amount of propane, the concentration of volatile ingredients in the oils removed amounting to from 50 to 60 per cent for each 100 per cent of oil; so that for 100 gm. of treated oil, 150 to 160 gm. of propane-butane-in-oil solution were removed. Thanks to the conditions of the experiment, the viscosity of very heavy constituents, as for example, the coloring substances, was lowered to the degree that they could easily be drawn off and well separated from the upper phase at room temperature. The dispersion of the upper phase increased with the separation of the heavy oils and amounted to about 30 parts by weight of propane-butane to one part of oil after the last separation at 100 atm.

(f) The figures given for pressure and weights must be regarded as roughly approximate values.

The fractionates obtained were freed from propane-butane thus:

TABLE 2—BORYSLAW RESIDUE DE-PARAFFINED. PROPANE-BUTANE: C_3H_8 — 45.7 PER CENT; C_4H_{10} — Iso 36.5 PER CENT; NORMAL — C_4H_{10} 14.7 PER CENT

Amt.	Vol. of prop.-but.	Proportion	Pressure	Yield, %	D 15.6	Visc. 50°, °E.	Visc. 98.9°	V.I.	V.G.	Pour-point	Flash-point
154	625	4.05	8	....	0.948	47.0	4.36	55	0.876 0.877	....	256
			60	25.5	0.9925	....	10.35	..	0.923	....	
			80	34.6	0.958	55 5	4.76	60	0.874 0.875	—15	
			100	20.4	0.920	24.7	3.28	82	0.845 0.846	—12	
		Above	100	15.4	0.8945	9.66	2.12	92	0.825 0.822	—10	

TABLE 3—COMPARISON OF POTOK-HARKLOW CRUDE WITH RESIDUE. PROPANE-BUTANE 89 PER CENT C_3H_8 11 PER CENT C_4H_{10}

Amount	Vol. of prop.-but.	Pressure	Yield, %	D 15.6	Visc. 50°E.	Visc. 98.9°E.	V.I. fract. frm. crude	V.I. fract. frm. res.	V.G. fract. frm. crude	V.G. fract. frm. res.	Mol. wgt.
3,318	22.5	8	4	.....	.....	.....	..	..	.....	...	...
		80	10.75	0.983	.....	11 64	..	..	0.909	...	445
		100	6.15	0.945	18.33	2.58	54	41	0.885 0.833	874	425
		130	14.55	0.912	3.07	1.45	53	41	0.867 0.864	858	314
		Above	52.7	0.8295	.....	.....	..	..	.....	...	...

TABLE 4—COMPARISON OF DISTILLATES AND FRACTIONATES OF POTOK-HARKLOW OIL

Spec. grav. Dist.	Spec. grav. Fract.	Visc. at 50° C. °E. Dist.	Visc. at 50° C. °E. Fract.	V.I. Dist.	V.I. Fract.	V.G. Dist.	V.G. Fract.	Pourpoint Dist.	Pourpoint Fract.	Flash-point Dist.	Acid No. Dist.	Acid No. Fract.	Yield Dist.	Yield Fract.
0.928	.....	3.4	....	—52	..	0.886 0.886	...	—18 fluid	..	178	1.74	....	12.4%	....
0.9360	0.914	6.7	7.21	+ 2.5	48	0.885 0.886	885 854	—18 fluid	—17	203	1.47	0.19	17.6	33.1
0.943	.....	17.3	....	—15	..	0.882 0.885	...	—18 fluid	..	228	1.29	....	9.5	....
0.9515	.....	25.4	....	—21	..	0.888 0.892	...	..	..	228	1.28	....	5.6	....
0.9585	.....	25.8	....	+20	..	.....	...	+115	..	210	0.38	....	25.2	....
0.950	0.948	....	42.8	+17	44	0.880 0.883	878 879	—9	+5	265	0.50	0.50	7.2	38.5
0.956	.....	74.2	....	+15	..	0.881 0.886	...	—6	..	282	0.30	....	0.6	....
0.966	.. ..	14.9	....	..	..	0.893	...	+6	..	303	....	....	4.00	....
0.942	.....	14.3	....	+ 8	46	0.884 0.886	...	—10	..	...	....	....	Avg. 84.1	....

coloring substances, by heating to 150° and simultaneous fanning with cold gas; oils, by heating under vacuum at 100°.

Analyses were made according to the conventionally accepted directions of Holde.

Determinations of viscosity were made on a Vogel-Ossag viscosimeter, trade-mark P.T.R.

Discussion of results:

The gradient of viscosity indices is small between successive fractions. At the same time, there is a noticeable improvement in the viscosity-gravity constant, with each succeeding fraction being better than the heavier preceding one.

The course of pourpoints indicates that ceresins have a tendency to concentrate in the heavy fractionates, although we do not preclude that this fact can also be explained by the sharp slope of the viscosity curve for coloring substances.

The range of flashpoints through an interval of 75° between asphalt and the lightest oil shows on the one hand that in the asphalt and in the coloring substances there is still concentrated an appreciable amount of volatile constituents and on the other hand, that the separation takes place according to the principles of vapor pressure.

Acid numbers and saponification values have a characteristic order and indicate that acid substances have a tendency to concentrate in the heavier products.

Conradson numbers are more favorable in the light fractionates.

The order of molecular weights is likewise characteristic, and in agreement with physico-chemical principles.

The colors of the oils indicated on a Lovibond tintometer using a quarter-inch cell show that the products require no refining with sulfuric acid.

The resistance of fractionates to oxidation will be the subject of separate studies. At present we call attention to the fact that, at ordinary temperatures, coloring substances have a definite tendency to darken on the surface of contact with air, pointing to ease of reaction with oxygen. Tests were also conducted by fractionating the fractionates, both in the cold way by repeated dissolving in propane-butane and saturating with methane, and by distillation. We shall present the most interesting case of distillation of a fractionate obtained between 70 to 100 atm. The distillation was carried out in metal flask, under a pressure of 0.2 mm. of Hg, at bath temperatures between 130° and 250° C.

Characteristics of Sample

Sample: Specific gravity 0.9275; viscosity at 50°-15.27° E.; viscosity at 98.9°-2.34° E.; V.I. = 44.

Thirty-three per cent residue: Specific gravity 0.919; viscosity at 50°-40.7° E.; at 98.9°-4.28° E.; V.I. = 71.

Sixty-six per cent distillate: Specific gravity 0.9215; viscosity at 50°-9.02° E.; at 98.9°.

In this instance we have to deal with selective distillation which allows us to obtain a residue definitely less dense than the distillate, and greatly improved in viscosity index. We observed similar effects with other fractionates.

To show how fractionation depends on the solvent, the following tests were made:

Harklow residue, as above, was dissolved in five volumes of propane-butane to remove the main mass of asphalt; the propane-butane was expelled from the solution and 130 gm. of the product thus obtained was dissolved in 673 gm. of petroleum ether, specific gravity 0.627, boiling at 32° C. (pentane fraction). This solution was saturated with cold gas under pressure, and it was established that the separation of the lower phase began at about 130 atm.; qualitatively, then, the effect was similar to that observed with propane, the appearance, however, of the lower phase occurring at pressures of the cold gas above 100 atm. The use of a very light substance as the agent for separating asphalts, is then essential for easy fractionation, which was also observed in many other instances.

Experiments were also made on cylinder oil obtained by distillation from Harklow residue.

It was characteristic that the paraffins were concentrated in the light fractionates, resulting in a corresponding gradient of pourpoints, and such fractionates darkened considerably on the water bath.

2. Boryslaw Crude. — Table 2 — Residuum obtained in a high vacuum distillation was used. This crude had thus already passed through a process of distillation. The residuum was dissolved in propane-butane and deparaffined by the Self Refrigeration method (15). After filtering off the separated wax, the propane-butane was driven off and paraffin-free residuum obtained, to serve as the sample for this experiment.

Table 2 gives the results. The first row shows the properties of the residuum.

Discussion of Results: Characteristically, the viscosity index improves with each lighter fractionate and amounts to 92 for the lightest product.

The oil obtained between 60-80 atm. is interesting. It has a viscosity index of 60, 5 units higher than the original material, and at the same time a higher viscosity at 210° F. The fractionates were very bright.

3. Comparison of Potok-Harklow crude with its residue. Table 3 represents results using fractionates obtained directly from Potok-Harklow petroleum and fractionates obtained from industrial residue which was so selected as to be reasonably representative of the oil.

Discussion of Results

Discussion of Results: The separation of coloring matter ends at about 80 atm. in the extraction from the crude, i.e. at a rather high pressure; this is due to the presence of naphtha, which interferes with the separation of the coloring matter.

The viscosity indices of the oils obtained directly from the crude are better by 12 units than the corresponding oils from the residue. However, on the strength of this experiment, it is difficult to state whether the heating of the oil in the cylinder distillation was influential in lowering the viscosity indices. At this time it would be better to withhold final judgment, since the conditions of the experiments on the crude differed from those on the residue in that the presence of naphtha causes partial entrance of light hydrocarbons into the oils and the viscosity indices can be changed by this small amount of light substances. This assumption might be supported by the viscosity gravity constant which shows more improvement in the residue fractionates than in the crude oil fractionates.

The product above 130 atm. in the above experiment, specific gravity 0.836, may be treated as the residue of a crude, 73 per cent of which boils below 300° (according to Engler); 810 gm. of this product was dissolved in 1,780 gm. of propane-butane and repeatedly saturated with cold gas to 150 atm., resulting in:

264 gm. of lower phase, spec. grav. 0.8545
100 gm. of middle phase, spec. grav. 0.8395
361 gm. of upper phase, spec. grav. 0.8035
85 gm. loss.

These second order fractionates have various boiling curves.

This experiment indicates that in the makeup of light hydrocarbons there exists a means of obtaining products of varying properties with the aid of propane-butane.

4. Comparison of Potok-Harklow residue with its industrial distillates. Table 4 represents the derived properties of distillates from Potok-Harklow residue obtained by high vacuum distillation in a barometric condenser, alongside of the properties of fractionates obtained from the same residue.

Discussion of Results: The densities of the corresponding fractionates are lower. Viscosity indices, as well as viscosity-gravity constants, are better in the fractionates. The mean fractionate has an index 38 units better than the mean distillate. Here we note that when refined with sulfuric acid the distillates improve their viscosity indices some 20 to 26 units. In the case of fractionates too, improvement was noted after refining with sulfuric acid.

The acid numbers indicate that distillates are more acid, and that the number of carboxyl groups is greater in the light distillates than in the heavy distillates, while the opposite is true with fractionates.

In closing we call attention to two considerations of a technical nature.

In practice the operations presented are easily controlled, the technique of high pressures presents no difficulty today, and the cost of compression of gases is low.

Propane-butane is produced today in large quantities and the situation in the gasoline industry is such that new methods for the application of propane-butane are in great demand. In this way the petroleum industry would be entirely independent of other chemical industries, since oils from suitably chosen fields could be utilized without refining by sulfuric acid.

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High Film Strength Motor Oils Put Under Severe Tests

A reduction in the cost of maintaining the average automobile may be expected during the next 10 years according to petroleum scientists of the Atlantic Refining Co. who have been conducting experiments into the film strength characteristics of lubricants in and around Philadelphia.

A fleet of low-priced stock cars—two Chevrolets, two Fords and two Plymouths—have just completed a run of 100,000 miles each with so little wear that they are virtually in new car condition. After the equivalent of 10 years of average motoring, the test fleet has had no repair to any lubricated motor part, no carbon removed, no bearing tightened, no piston ring changed, has lost no compression and has maintained acceleration within half a second of new car performance.

The test cars used an oil film strengthened to bear pressures of 15,000 pounds per square inch—three times average. Laboratory experiments had indicated that such an oil would reduce piston ring wear some 40 per cent and cylinder wear more than 30 per cent. Automotive engineers had calculated that such a wear reduction, applied to all cars in the United States would result in a reduction in motor repair bills for the country of between $50,000,000 and $100,000,000 per annum.

The test cars have been running for five months over an 80-mile course in and around Toms River, New Jersey. They have averaged 40 miles an hour, 24 hours a day, 6 days a week and have been driven by amateurs—men between the ages of 19 and 48 who were selected because they had never had professional driving experience. They included clerks, a golf professional, a fisherman, a haberdasher, an electrician, etc. While the motors have not yet been taken down for accurate micrometer measurements, the heads of two of the test cars were removed and measurements taken at that time indicated that the average cylinder wear for the fleet would be less than five-ten thousandths of an inch—normal expectancy for only 10,000 miles of driving, or one-tenth the distance covered by each car in the fleet.

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INDICATING FLOW METER (ELECTRIC)
INDICATING POTENTIOMETER OR RESISTANCE THERMOMETER
RECORDING POTENTIOMETER OR RESISTANCE THERMOMETER
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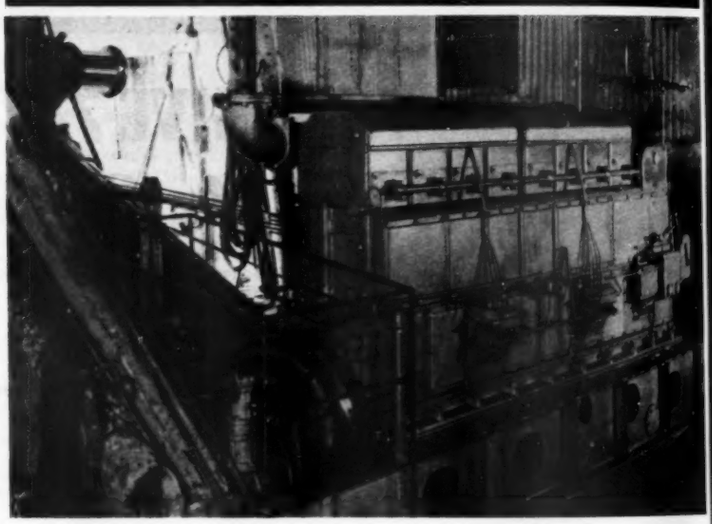

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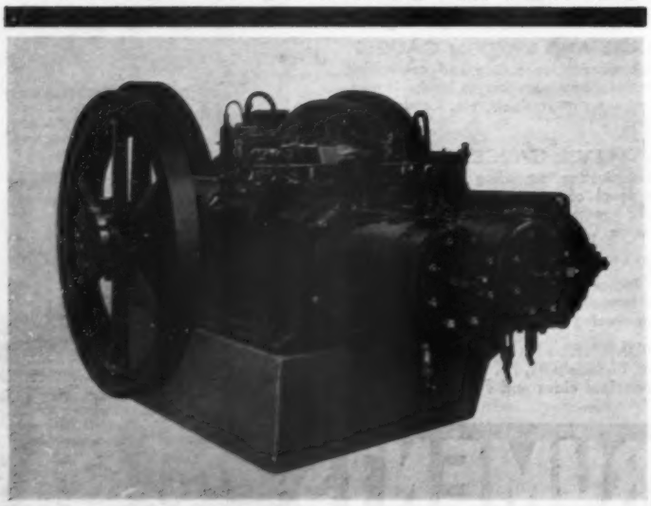

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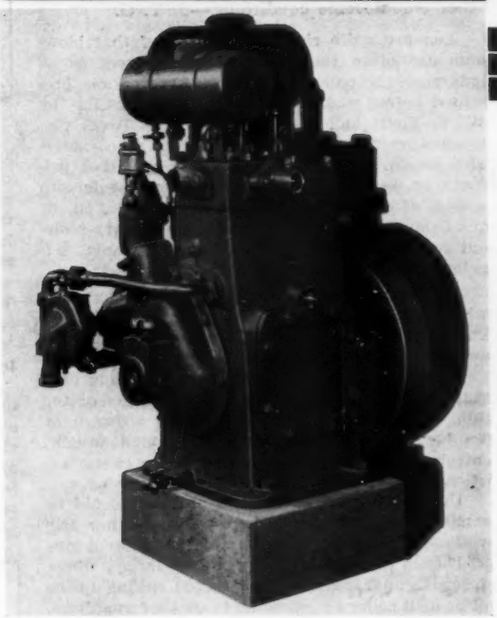

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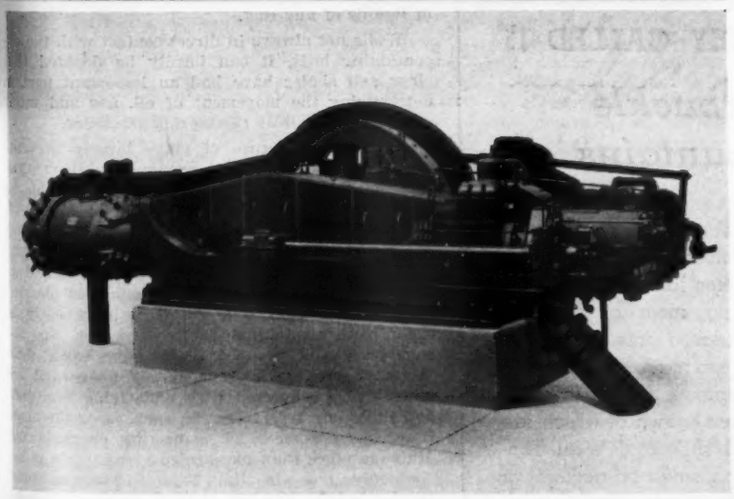

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PROBLEMS FROM READERS

Edited by T. F. Smiley

Blowouts Usually Are the Result of Poor Mud or Careless Crews

I can't help thinking that blowouts, with the severe losses often attending them, might be greatly reduced in number and seriousness if proper precautions were taken in preparation of the circulating mud and if the drilling crews used more care. I think that because I have heard of several blowouts that were caused by delinquency in one or the other of these particulars. I try to use the utmost care myself, and I would be very glad to receive from you any suggestions that might be of use in preventing such accidents. I would like to know what chemicals are used in drilling mud to make it better for handling situations where you encounter porous formations, heaving shale or other troublesome conditions.—S. T. G.

You are quite right in your belief that blowouts are often the result of carelessness or of ignorance. A paper on blowout prevention presented before a district meeting of the A.P.I. by W. V. Vietti and A. G. Levy, of the Texas Co., touches on this phase of the subject at considerable length. They classify blowouts as either primary or secondary. A primary blowout refers to a flow of mud in combination with water, oil, or gas from a rotary drilling well. A secondary blowout refers to a wild well, or, in other words, is a primary blowout which is out of control.

Primary blowouts are accidents, the causes of which are often obscure. However, the principal known causes are use of improper drilling mud and carelessness by the drilling crew.

Under the first head would come drilling mud that is too light or too heavy, too viscous or too thin, too high gel rate, too high gel strength or too low, incorrect measurement of mud weight, entrained gas or air, lack of uniform characteristics, or inadequate de-aeration or screening.

Under the head of careless practices could be named: (a) Running fill-up pump continuously while pulling pipe from hole; (b) pulling drill pipe off bottom too rapidly; (c) using too large a diameter drill collar, reamer, or pipe; (d) balling-up the bit or drill collar by crowding in sticky formations; (e) drilling too rapidly into gas-bearing zones, entraining the gas faster than the mud can safely carry it to the surface; (f) pulling pipe out of the hole before the mud is in proper condition; (g) continuing to drill or circulate mud in the hole during a heavy rain; (h) failure to have an available reserve supply of mud for change when necessary; (i) failure to have adequate pumping equipment backed-up by boilers of ample capacity and in good repair; (j) lack of general vigilance on the part of drillers and foremen for the unmistakable signs of gas.

Prevention of primary blowouts is not so simple as an enumeration of the known probable causes, which, however, do suggest certain procedures.

A well filled with a mud column of sufficient density cannot blow out. The required density for normal conditions has been thoroughly studied and summarized by J. W. Graybeal and E. P. Hubbard, who agree that a mud column weighing 9.5 pounds per gallon is sufficient to overbalance the normal pressures encountered in the Gulf Coast. Formation pressures seldom exceed a maximum equal to the pressure which would be imposed by a column of saline water in the well, which pressure is about 10 per cent in excess of that which would be exerted by a column of fresh water. Blowouts are frequently attributed to abnormally high pressures, which, as a general rule, have been found later to be normal. Failure to observe the signs of imminent trouble and failure to take proper preventive measures are generally the true explanations.

Readers are invited to send questions relating to drilling, producing and transporting operations. These questions will be referred to persons capable of answering authoritatively. The names of those writing for information will be held confidential, initials only being published. This department cannot undertake to answer questions involving royalty or other investments, patents or intricate formulas or questions which should be submitted to consulting engineers, geologists or lawyers.

Maintenance of a mud column of the desired height, of uniform weight, viscosity, and gel characteristics is the real problem. Mud of adequate density (9.5 to 10.5 pounds per gallon) is neither hard to prepare nor expensive to maintain. Heavy muds are difficult to handle, expensive to prepare and maintain, and are generally unsatisfactory. They have undesirable characteristics of viscosity and gelation which invite blowouts. An operator will usually experience more blowouts with 14-pound than with 10-pound mud.

With regard to the use of chemicals for various purposes in drilling mud it should be pointed out that before venturing into this field a person should have a working knowledge of chemistry and geology. He also should know something about laboratory practice and the different reactions produced by various chemical combinations.

WHY THEY CALLED IT

Arbuckle Mountains

The Arbuckle Mountains in Oklahoma, subject of thorough study by many petroleum geologists, cover an area 60 miles long and 40 miles wide, including most of Johnston County and a large part of Pontotoc County. They are made up principally of a low plateau, with a few elevations, the best known of which are East Timbered Hills and West Timbered Hills, so named on account of the timber, mainly oak, which covers them. The mountains got their name from Fort Arbuckle, an army post established on their northern flank at about the time of the Civil War's close. The fort was named for General Matthew Arbuckle.

Shale and Clay Strata Rarely Are Oil or Gas Containers

I find frequent references to shale oil, which of course means oil coming from shale, but in drilling operations shale seems to be of no importance. This is a little confusing to me, and I would appreciate information regarding the place shale and shale oil have in the oil industry and petroleum geology. What is the difference between shale and slate?—E. O. S.

Shale oil is oil extracted from shale. It has no place commercially in the oil industry at this time, though experiments conducted by the U. S. Bureau of Mines have demonstrated the value of this oil source in time of national emergency. The term "shale oil" sometimes is applied, improperly, to oil produced from crevices in shale. Shales are laminated rocks made up from hardened muds, silts or clays as the result of pressure.

Underground rocks figuring directly in the production of petroleum may be classified roughly as containers or retainers. The container rock is highly porous, the interstices permitting free movement of oil, gas and water, but it is not itself capable of retaining them. The retainers are dense nonporous rocks which prevent the escape of oil, gas and water from the container rocks.

It is only in unusual cases that shales and clays serve as containers of oil and gas. Their function is primarily that of retaining oil. The original substance of the group, clay, has as high a porosity as the average unconsolidated sand. This has been placed as high as 50 per cent. However, the pores are, like those of chalk, so extremely small that water or other liquids entering them are able to escape only when the pore space is reduced by dynamic or static pressure and the liquids are forced out by decreasing the porosity. In shales the porosity is low because of the high degree of compacting of the flat particles of Kaolin (very pure white clay) attained with moderate pressures. The remaining pores are largely of subcapillary size and therefore unfavorable to the movement of liquids of any sort.

While not always in direct contact with the oil-containing beds, it can hardly be doubted that clays and shales have had an important part in determining the movement of oil, gas and water in practically all of the world's oil fields.

The plastic nature of clays largely prevents the development of joint openings in them. The enlargement of such fractures is not possible as in the case of limestones because of the insolubility of the powder-like kaolin, of which they are composed. Even in shales joints are uncommon. Their development is generally limited to beds which, because of their chemical or physical character, develop slaty characteristics early in their history. Jointed shales, however, are not common as oil producers. In some cases shale joints or crevices lie immediately above and are undoubtedly connected with underlying sandstone and limestone reservoirs. In such cases the shale fissures serve more as connecting channels and drainage pipes than as storage areas. This is undoubtedly true in the Tampico-Tuxpam field, Mexico, where the San Felipe shales, which lie above the Tamasopa limestone, are sometimes large and long continued producers of oil. The irregular distribution and erratic character of these wells leads to the conclusion that they do not tap a definite and continuous body of oil in the shale itself.

Shale is soft and fairly easy to drill, as it breaks into large pieces which mix readily with water into mud or sludge. Slate is brittle and breaks in smaller pieces when drilled.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit problems to Dr. C. K. Francis. Questions should give as much detail as possible. Inquiries must be signed but only the given initials will be printed. The source of questions is considered confidential. Questions requiring discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered in these columns.

Definition of Natural Gasoline and Commercial Specifications

What is a reasonable definition for natural gasoline for purposes of distinguishing it from other grades of gasoline?—B.T.

The following is supplied by the Natural Gasoline Association of America.

Natural gasoline is a liquid petroleum product consisting of the heavy hydrocarbons extracted from natural gas by such means as compression, absorption, and other processes.

Natural gasoline is defined further for commercial purposes by the following specifications:

1. Reid vapor pressure, 10 to 34 pounds
2. Percentage evaporated at 140° F., 25 to 85.
3. Percentage evaporated at 275° F., not less than 90.
4. Endpoint, not higher than 375° F.
5. Corrosion, non-corrosive.
6. Doctor test, negative, "sweet."
7. Color, not less than plus 25 (Saybolt).

In addition to the above general specifications, natural gasoline shall be divided into 24 possible grades on a basis of vapor pressure and percentage evaporated at 140° F. Each grade shall have a range in vapor pressure of 4 pounds, and a range in the percentage evaporated at 140° F. of 15 per cent. The maximum vapor pressure of the various grades shall be 14, 18, 22, 26, 30, and 34 pounds, respectively. The minimum percentage evaporated at 140° F., as shown in the accompanying table.

GRADES OF NATURAL GASOLINE

Reid Vapor Pressure	Percentage Evaporated at 140° F. 25	40	55	70	85
34					
30	Grade 34-25	Grade 34-40	Grade 34-55	Grade 34-70	
26	Grade 30-25	Grade 30-40	Grade 30-55	Grade 30-70	
22	Grade 26-25	Grade 26-40	Grade 26-55	Grade 26-70	
18	Grade 22-25	Grade 22-40	Grade 22-55	Grade 22-70	
14	Grade 18-25	Grade 18-40	Grade 18-55	Grade 18-70	
10	Grade 14-25	Grade 14-40	Grade 14-55	Grade 14-70	

Dangerous Gases of the Petroleum Industry and Their Control

What precautions are taken in the petroleum industry to detect dangerous gases and to prevent harmful results to the men that may be exposed to these gases? Do you have a list of the poisonous gases and vapors met with in the various departments of the petroleum industry?—T.P.C.

There are not many toxic gases or vapors commonly met with in the petroleum industry. Most of the crude oils contain sulfur so hydrogen sulfide and sulfur dioxide are frequently evolved in the field and at refineries. Some substances are used in refining, especially in the purification of light products and lubricating oils, that introduce toxic gases. The treatment of greases may involve others. Storage tanks and the tanks of tank steamers are always possible dangerous places where explosive and gases harmful to man may be found.

The practice in the industry is to collect samples for analysis from suspected areas. Recording instruments which automatically analyze the air or gas are also in use.

These gases may be encountered in the industry, in the cleaning of units, refining, tank cars and oil steamers: Hydrogen sulfide, sulfur dioxide, aniline, chlorine, carbon monoxide, nitrobenzene, organic halogen compounds, arsine, nitrous fumes, prussic acid, carbon disulfide, phosgene and benzene.

Test papers which change color on contact with certain gases have been developed, the depth of stain giving an indication of the concentration, and automatic instruments are now available for detecting dangerous quantities of some gases. The Hoolamite carbon monoxide detector shows CO concentrations down to 0.07 per cent by change of color (green) of a granular material when the gas is drawn through it.

Hydrogen sulfide is one of the most poisonous of gases, a fact chemists have often failed to realize because of the familiarity which bred contempt. In a concentration of 0.15 per cent, 1 in 66 or 2.28 mgm. per liter, and over it is nearly as toxic as prussic acid, and such high concentrations have killed very rapidly. The maximum safe concentration for six hours might be taken as 0.01 per cent (1 in 10,000), but it should be kept at a lower figure. Dry lead acetate papers have been proposed. The color change produced also forms the basis of a continuous automatic detector in cooperation with a photo-electric cell which causes a bell to ring or other warning to be given directly a dangerous concentration of hydrogen sulfide is reached.

Carbon monoxide is a most insidious gas, the permissible concentration for long exposures is 0.01 per cent (1 in 1,000), while for short exposures 0.02 per cent is not dangerous. In practice it is desirable to work to the lower figure and, if possible, below that where the exposures are likely to be frequent.

The test paper chosen by the association depended on the reduction of palladium chloride to metallic palladium. Gases interfering with the test were removed by drawing the air first through a tube of activated charcoal. Sampling was continued until a standard color was reached; from the time required, the concentration was then obtained by reference to a chart. In this way concentrations of 1 in 500 could be detected in less than 2 minutes, of 1 in 2,000 in 6 minutes, and of 1 in 10,000 in 30 minutes.

Arseniuretted hydrogen has been encountered in cleaning tanks which had contained commercial sulfuric acid. It is extremely poisonous to breathe and there is evidence, that repeated exposures to low concentrations resulted in cumulative effect, with severe poisoning as a result. The conclusion reached from the available data was that the permissible concentration for an unprotected man for a single period of four to six hours' exposure should not exceed 1 in 200,000. Mercuric chloride test paper was proposed, preferably inserting before it a lead acetate test paper to remove any traces of hydrogen sulfide which would otherwise affect the mercuric chloride paper and so vitiate the test.

Sulfur dioxide is a dangerous gas, because at lower concentrations which are not very irritating, prolonged exposure causes inflammation of various kinds. No reliance can be placed on its odor as a warning, and the maximum concentration allowable for exposures up to six hours is 1 in 100,000. The chemical test paper adopted as the standard method for estimating traces of sulfur dioxide in the atmosphere is the starch-potassium iodate-potassium iodideglycerol, which changed to a violet color.

Canisters connected with masks and respirators are extensively used in the petroleum industry. The charcoal and soda-lime filled canister protects against acid gases, such as chlorine, formic acid, hydrogen chloride, hydrogen cyanide, hydrogen sulfide, nitrogen peroxide, phosgene, and sulfur dioxide; also against organic vapors such as acetone, alcohol, aniline, benzene, carbon bisulfide, carbon tetrachloride, chloroform, ether, formaldehyde, toluene and similar compounds. They should not be used in gasoline vapor because of the very low capacity for this vapor; they afford no protection against ammonia and none whatever against carbon monoxide. A special material is used in the carbon monoxide canister, called hopcalite, a granular material consisting of mixtures of the oxides of maganese, copper, silver and cobalt.

References: J. D. Pratt, Assoc. British Chemical Mfgs., "Toxic Gases in the Petroleum Industry," Petroleum Times, October 5, 1935, page 351. Fieldner, Katz, and Kinney, "Tests of Gas Masks, etc.," U. S. Bureau of Mines, Tech. Paper 292, pages 10 and 14.

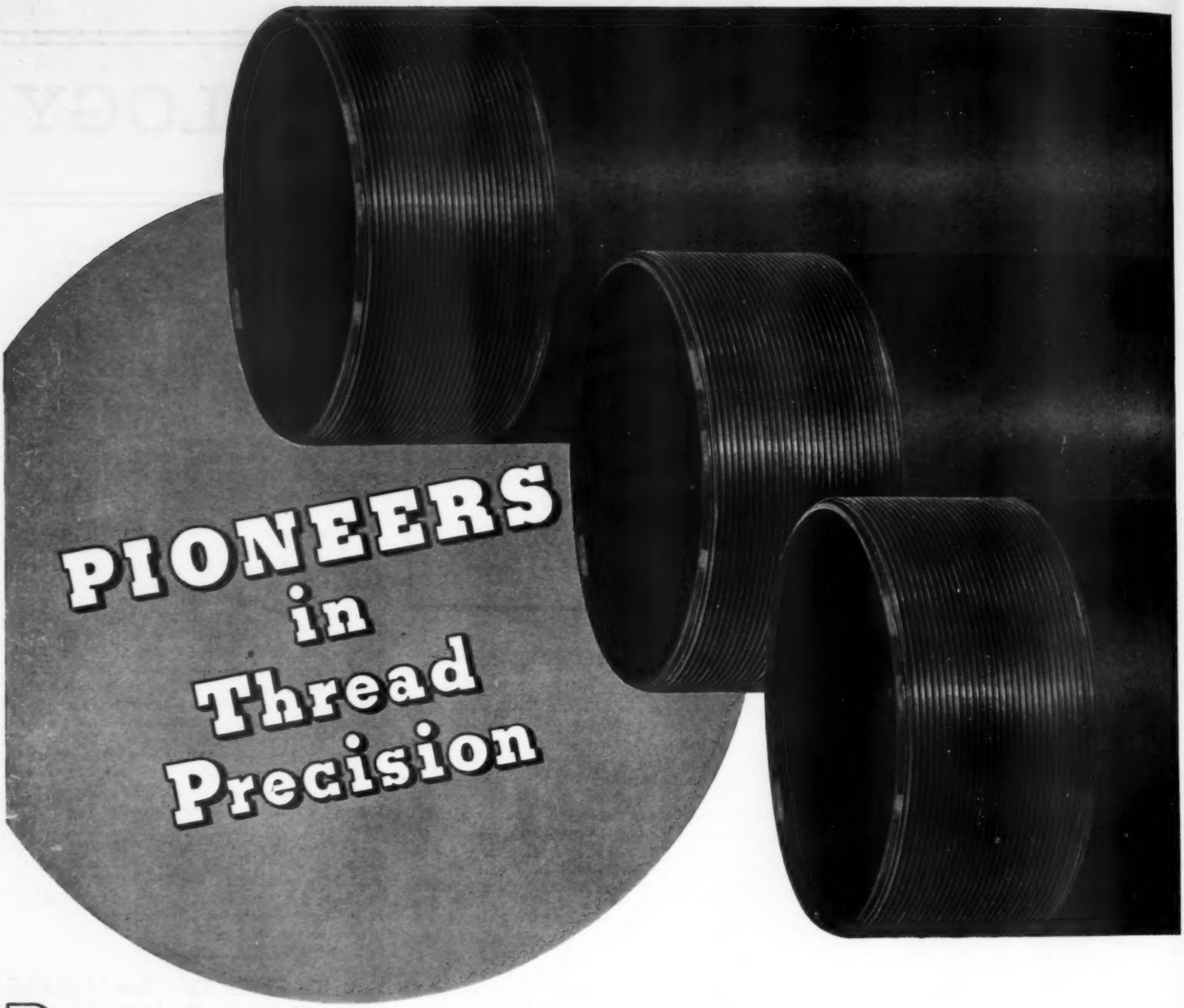
Suitable Fluids That Are Marketed for Hydraulic Brake Systems

I am interested in brake fluids as marketed for hydraulic brakes and would be grateful if you could inform me what particular qualities are required for liquids which are to be used with satisfaction in this way? Any details regarding the liquids suitable for use in brake systems would be helpful.—W.E.C.

Hydraulic brake fluids should have properties similar to the anti-freeze liquids used in automobile circulating cooling systems. A satisfactory brake fluid should serve as a lubricant, so it is the practice in some brake units to incorporate a small quantity of oil. The liquid should be non-corrosive, not volatile at ordinary temperatures and must remain liquid at very low temperatures so that it will function under the most extreme conditions of the winter season. A liquid to be used as a brake fluid should have a neutral reaction and have no tendency to decompose, with the formation of acids or corrosive substances, when mixed with water.

The di and trihydric alcohols appear to be the favorite products to be used. Glycerin has a high boiling point and is non-volatile. The difficulty is to obtain a grade that is commercially pure. Much of the glycerine found on the market has a tendency to decompose, with the formation of corrosive substances.

One hydraulic brake fluid consists of glycerine, 90 parts and Turkey-red oil, 10 parts. Ethylene glycol may be used 100 per cent or with the addition of a small percentage of Turkey-red oil or castor oil.



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World Oil Industry Record in 1935

Marked acceleration in the efforts of foreign countries to assure themselves of oil supplies was the chief development abroad in the present year.

To this end governmental interference in the refining and distribution of petroleum products is increasing. Importers are being subjected to drastic regulations designed to further nationalistic policy.

There is a notable expansion in construction, enlargement and modernization of refineries abroad. Expansion of cracking facilities has been more outstanding abroad in the past two years than even in this country which has 45 per cent of the present cracking capacity.

The Oil and Gas Journal world refinery survey published in this issue shows that cracking units with a capacity of 125,000 bbls. daily were either recently completed or are now under construction. The quality of crudes available to foreign refineries has obliged refiners abroad to take up cracking and reforming to secure the products in demand.

Another feature of foreign development is the trend towards large refineries. Those at Abadan, Iran (Persia), Curacao and Aruba probably exceed in crude runs any single plant in this country where a few major plants are supplemented by a great many smaller plants.

The nationalistic policy abroad forcing location of refineries within certain countries is often uneconomic and contrary to the best practices for economical refining and distribution.

Nationalistic Interference

Governmental interference with the normal operations in world oil trade is likely to be accentuated, rather than decreased by the recent excitement over oil sanctions. It is curious to find that while the League of Nations was threatening to cut off exports of oil to Italy, Great Britain was anxiously discussing its own oil position in the event of war.

While the United States has been regulating its production of crude Germany has been rejoicing over the discovery of five new oil fields, in the north German plain, far removed from the four existing fields. Her crude production is expected to reach 3,000,000 bbls. this year against 2,300,000 bbls. last year, but the government is assisting exploration for oil and hopes of greatly increasing domestic production are high.

The efforts of the Italian government to encourage search for oil in Italy have not been encouraging but deeper exploration is now under way. The Anglo-Iranian Co., in which the government owns 50 per cent, has acquired rights to drill on 5,000 acres in the center and south of England. Although geologists have considered structural conditions in that country unfavorable the company believes there is sufficient justification for exploratory drilling with modern, scientific instruments and equipment.

Meanwhile the new Iraq pipe line is supplying 75,000 bbls. a day, mostly to refineries in France and England. An interesting sidelight is that the Anglo-Iranian Co.'s exports from Iran have been reduced, as it draws its share from the Iraq line. It owns the Iran field which is being developed only as needed. It owns only about one-fourth of the Iraq company which it shares with Compagnie Francaise, Shell and the Near East Development Co. (American).

Venezuela, third producing country, reports a new peak of 408,786 bbls. daily. Peru also indicates a new high of 40,748 bbls. while Columbia is but little below its peak of 49,375. Iraq has jumped into eighth position as a producer with 71,850 bbls. daily, while Iran produced 152,120 bbls. daily. Argentine's output in the earlier months of the year indicated a new peak there also.

Progress in Motorization

Consumption of gasoline in the United Kingdom has been about 5.3 per cent larger than in 1934. Motor car production which advanced sensationally in 1934 continued its pace.

In Germany the government has made it a deliberate policy to encourage motorization, convinced that, as America has shown, it is the chief factor in national progress.

Until the war Italy had also been eager to assist development of motorization in the Peninsula. France, on the contrary, continues to heap handicaps on the expansion of motor use by increased taxation, with the result that production is tending downward.

The results of Germany's far sighted policy is, however, likely to be a lever in lifting Europe to higher standards of transportation. If Germany develops in proportion anything approaching the industrial and commercial advantages from the general use of the motor car and truck that America has done, no rival in Europe can afford to lag behind. With that development there will be need for all the refineries now being built and more, as well as opportunity for trade by the more fortunate countries possessing the crude supply.

The life fluid of the Italian army! "Petrolio," they call it in Italy. Thousands of barrels of oil at Massawa, Eritrea, African port, from which Italy's supplies are distributed to the Italian army in Ethiopia.

(International News Photos)

Improved Motor Fuel Furnished World by Reforming or Cracking Gasoline

By GUSTAV EGLOFF, EDWIN F. NELSON and G. B. ZIMMERMAN
Universal Oil Products Co.

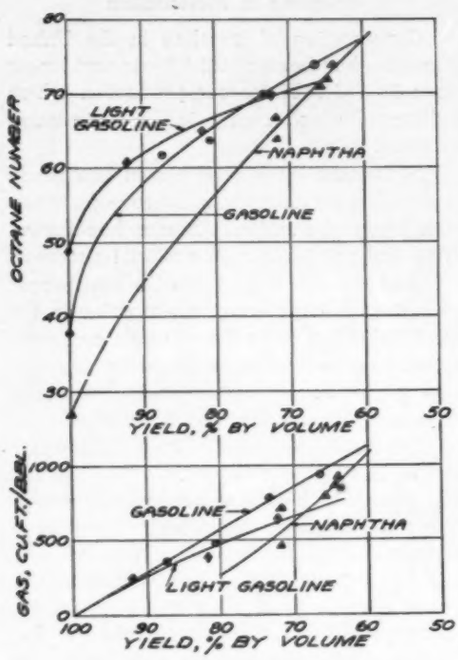

Fig. 1—Reforming Pennsylvania stocks. One was a 350° F. endpoint gasoline, one a 396° F. endpoint gasoline and the other a naphtha boiling between 272° F. and 479° F.

Not alone is the cracking of heavy oils increasing, but also straightrun gasolines and naphthas in order to raise the octane ratings of finished gasoline suitable for modern motor cars. The importance of reforming nature's gasolines which are no longer suitable for the high compression motors of today is shown in the fact that about 25 per cent of the straightrun gasolines and naphthas produced in the United States will be cracked during the year 1935 into high octane gasolines.

Reforming Results

Of a large number of stocks employed in the experimental work, representative groups have been selected. The sources of these stocks are noted on the accompanying map as follows:

SOURCES OF REFORMING STOCKS

	Map location	Table No.	Figure No.
Pennsylvania	1	1	1
Michigan	2	2	2
Mid-Continent	3	3	3
East-West Texas blend	3	4	4
West Texas	4	5	5
Montana	5	6	6
California	6	7	7
Mexico—Naranjos	7	8	8
Other Foreign:			
Trinidad	8	9	....
Rumania	9	9	9
Iraq—Baba Gurgur	10	9	....
Persia	11	9	....
Russian Ural—Mt. Baskis	12	9	....

The results of cracking stocks of various boiling ranges from these sources are given in Table 1

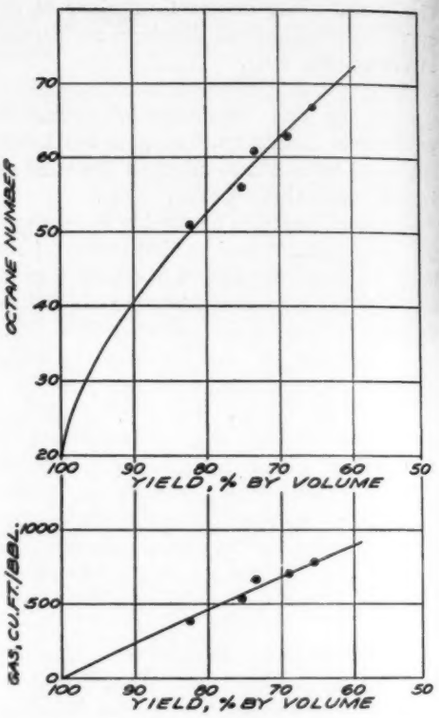

Fig. 2—Reforming Mount Pleasant stocks

Key map showing locations from which samples of reforming stocks were secured. Sources are noted by numbers in circles

Dubbs reforming unit, 3,000 barrels a day and two-coil selective cracking, 4,000 barrels a day. The unit is one of the most modern located in France

through 9 and are shown graphically in Figures 1 through 9.

Over a period of years, an intensive and extensive study has been made of straightrun gasolines and naphthas from Pennsylvania, Michigan, the Mid-Continent, East and West Texas, Montana, California, Mexico, Trinidad, Rumania, Iraq, Persia and Russia. In addition to the relationship of octane rating to yield, the volatility increase, sulfur reduction, and gas characteristics have been studied and comparisons made with commercial operation of cracking or reforming of gasoline or naphtha.

These stocks were processed in a pilot plant in which the gasolines were cracked in a single pass through the system. Entering the furnace under pressures of 500 to over 1,000 pounds per square inch, the charge was heated to temperatures of 920° F. to over 1,000° F. A reaction chamber was used in the small scale equipment to provide sufficient cracking time. The product of cracking passed to a fractionating column. The gasoline and gas were passed through a condenser and the gasoline stabilized. For each stock, a suitable operating pressure was chosen, while the feed rate and temperature were adjusted to give the desired octane number gasoline.

In calculating yields, the pentane contained in the gas produced was added to the gasoline recovered; the butane was considered a part of the gas. The experimental error in the data as shown by weight balances was usually less than 1 per cent.

Three Pennsylvania fractions were reformed, a 350° F. endpoint light gasoline, a 396° F. endpoint gasoline, and a naphtha boiling between 272° F. and 479° F. The octane numbers of these fractions were 49, 38, and 27, respectively.

From the data and curves in Table 1 and Figure 1, the respective yields of 65 octane number gasoline from the three fractions are 84 per cent, 81 per cent, and 72 per cent, while for 70 octane number gasoline the yields are 71 per cent, 73 per cent, and 67 per cent. These figures illustrate that for lower octane number products, the light charging stock shows greater yields, but when producing higher octane number gasolines, the differences in yield from the various fractions are smaller or may disappear entirely.

Characteristics of Gasoline

The volatility of the gasolines produced, as shown by the 10 per cent, 20 per cent, or 50 per cent point in the distillation, is increased with increasing conversion. An increase in octane rating from 61 to 70 for the light gasoline was accompanied by a decrease in the 50 per cent point of 7° F., while corresponding increases in octane value for the gasoline and naphtha were accompanied by decreases of 8° F. and 10° F. in the 50 per cent point.

The charging stock which is not recovered as reformed gasoline appears as residuum and gas, both of which increase with increasing conversion. Except in the case of the naphtha, which contains material boiling above the endpoint of the gasoline produced, the residuum yield is less than 5 per cent of the charge when producing up to 75 octane number gasoline.

A 20 octane number Mount Pleasant, Michigan, gasoline was reformed at 1,000 pounds per square inch pressure and various temperatures. For a 65 octane number product, a yield of 67 per cent is obtainable while the indicated yield of 70 octane number gasoline is 62 per cent as shown in Table 2 and Figure 2. Because of the low initial octane number, the yield of high octane from this stock is lower than for others, with a greater gas production.

A 42 octane number Mid-Continent gasoline and a 34 octane number naphtha obtained from it were reformed producing 85 per cent of 65 octane and 74 per cent of 70 octane number gasoline from both. At lower octane numbers, however, the gasoline produced greater yields than the naphtha. These data are shown in Table 3 and Figure 3.

As with the stock previously shown, increasing conversion increased the volatility of the reformed gasoline and the production of residuum. Based on the results of these tests, the relative merits of reforming the entire gasoline and of separating a light gasoline by prefractionation and reforming the naphtha are discussed in a subsequent section.

A straightrun gasoline from a pipe line blend of East and West Texas crudes was reformed to products of a very wide range of octane numbers. The results are tabulated in Table 4 and presented graphically in Figure 4.

From the 54 octane number charge, 92 per cent of 65 octane and 84 per cent of 70 octane gasoline was obtained. Increasing the octane to 80 reduced the yield to 37.9 per cent, and as indicated by the yield-octane number curve, the octane number would continue to increase with decreasing

TABLE 1—REFORMING APPALACHIAN STOCKS

Charging stock—	Penna. light gasoline			Penna. straightrun gasoline				Pennsylvania naphtha				
Type:												
Gravity, °A.P.I.	64.4			58.1				49.8				
Sulfur, per cent	....			....				0.04				
Octane No. A.S.T.M. M.M.	49			38				27				
100 cc. distillation:												
I.B.P., °F.	117			152				272				
10 per cent	169			215				315				
50 per cent	192			280				329				
90 per cent	301			354				446				
Endpoint, °F.	354			396				479				
Operating conditions—												
Pressure, lbs. per sq. in.	750	750	750	500	500	500	500	475	475	477	478	478
Furnace discharge, °F.	920	950	975	950	950	975	975	950	974	975	975	975
Reaction chamber, °F.	880	900	925	900	899	923	926	900	924	926	926	924
Feed rate, gal./hr.	1.98	2.00	1.97	1.98	1.26	0.99	0.76	1.53	1.51	1.51	1.29	1.04
Cracking results—												
Gasoline:												
Yield, % by vol. of charge	92.0	81.9	72.2	87.2	80.8	73.3	66.5	71.7	71.9	65.7	64.6	64.0
Gravity, °A.P.I.	65.6	65.4	63.5	60.3	59.9	57.7	57.2	55.5	54.5	54.4	54.1	54.5
Octane No. A.S.T.M. M.M.	61	65	70	62	64	70	74	64	67	71	72	74
100 cc. distillation:												
I.B.P., °F.	105	132	99	88	95	106	84	94	90	86	84	88
10 per cent	162	160	148	165	162	160	154	162	162	156	152	145
20 per cent	180	176	172	202	195	192	188	219	213	204	200	192
50 per cent	236	231	229	264	258	256	252	304	306	298	294	289
90 per cent	322	316	320	360	353	380	384	390	403	398	390	397
Endpoint, °F.	365	354	363	398	399	417	404	406	419	411	409	410
Residuum:												
Yield, % by vol. of charge	0.0	1.6	2.5	2.5	3.8	1.3	4.6	13.6	7.5	9.8	10.1	7.6
Gravity, °A.P.I.	....	13.4	15.0	15.3	17.8	....	2.9	30.1	24.6	20.6	18.4	17.3
Gasoline content, per cent	....	3.5	3.5	....	....	....	....	2.0	trace	trace	0.0	0.0
Liquid vol. loss, per cent	8.0	16.5	25.3	10.3	15.4	25.4	28.9	14.7	20.6	23.5	25.3	28.4
Gas, cu. ft./bbl. of charge	250	392	645	364	481	790	946	464	704	790	868	919

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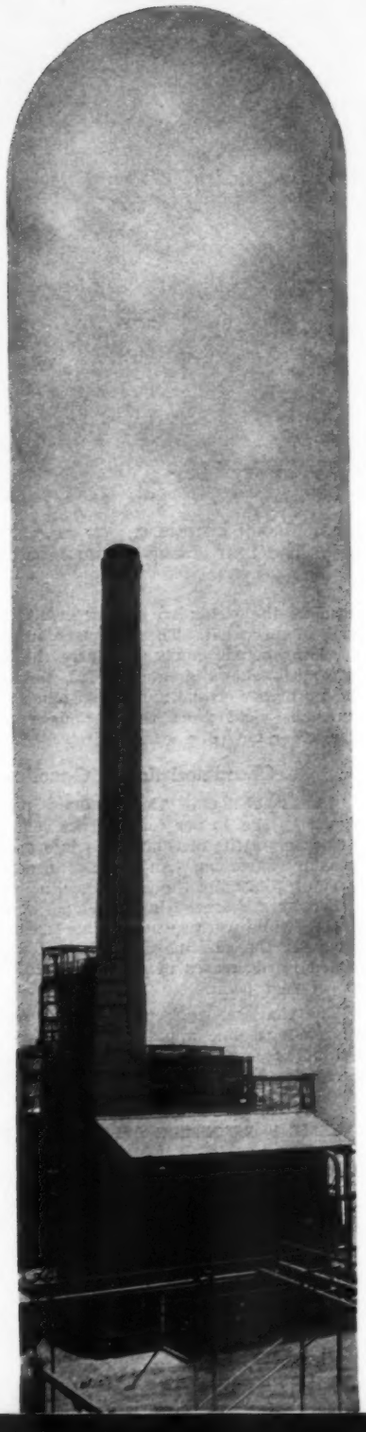

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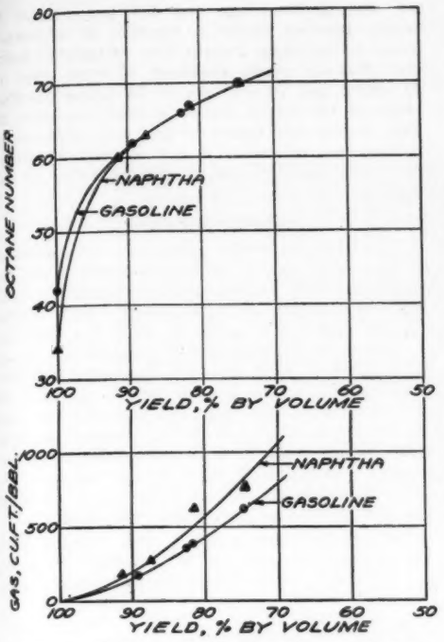

Fig. 3—Reforming Mid-Continent stocks

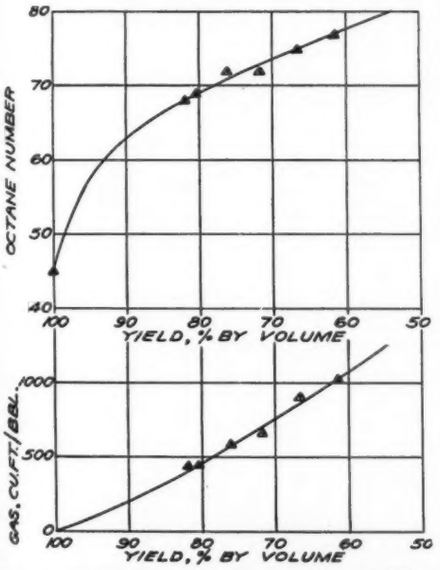

Fig. 4—Reforming blends of East and West Texas gasolines

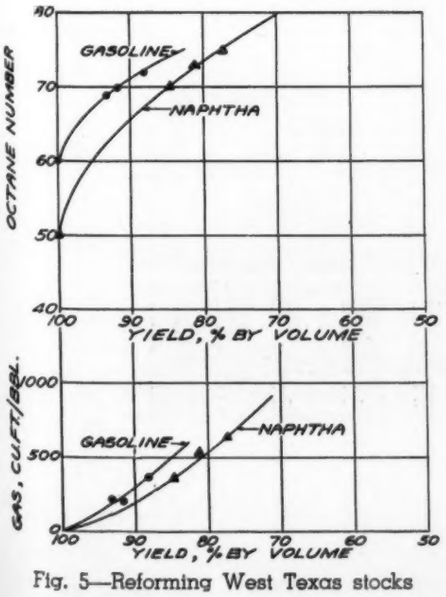

Fig. 5—Reforming West Texas stocks

yield. This is an excellent indication that the octane number obtainable in reforming approaches its limit only when the yield approaches zero. For this stock, the octane number approaches 84 as the yield is reduced toward zero.

West Texas Stocks

A 60 octane gasoline and a 50 octane naphtha from West Texas crudes reformed to 65 octane number gave yields of 97 per cent and 91 per cent respectively, while for a 70 octane product the yields were 92 per cent and 85 per cent as shown in Table 5 and Figure 5.

Because of the relatively high initial octane number of these stocks, the more rapid increase in octane with conversion for the naphtha as compared to the gasoline is not as apparent as with other stocks. They are similar to other stocks, however, in that the residuum production from gasoline increases with conversion, the gas production for a given octane number product is greater for the naphtha and the volatility of the product increases with conversion. It may be noted here as with other stocks, that the reformed gasoline from the naphtha at the higher conversion has a boiling range nearly identical with the straightrun gasoline of normal volatility.

Rocky Mountain Stocks

Although the data obtained in reforming the 50 octane gasoline and 33 octane naphtha from Montana crudes are not numerous, the results are similar in nature to those for other stocks. The yields of 65 octane gasoline, given in Table 6 and Figure 6, are respectively 92 per cent and 91 per cent from the gasoline and naphtha, while for a 70 octane product the yields are 86 and 85 per cent.

California Stocks

Table 7 and Figure 7 present the results of tests in which two California naphthas were reformed, the lighter of which had a boiling range of 303° to 364°F. and an octane number of 50. The 48 octane heavier naphtha, boiling between 299° and 427°F. yielded 88.8 per cent of 53 octane 400°F. endpoint straightrun naphtha in a topping operation. This result is shown in Table 7 and Figure 7 for comparison with the results of reforming the entire heavy naphtha.

The gasoline yields from the light and heavy naphtha in reforming were 96 and 81 per cent for 65 octane number and 92 and 77 per cent for 70 octane number, however, for 77 octane gasoline, the yields from the two naphthas are nearly identical, showing 69.2 per cent from the light and 70.5 per cent from the heavy naphtha. These data also furnish a good example of the effect of charge endpoint on the yield of residuum at various conversions. When a gasoline is pro-

TABLE 2—REFORMING MICHIGAN STOCKS

Charging stock—	Mount Pleasant straightrun gasoline				
Type:					
Gravity, °A.P.I.			61.7		
Sulfur, per cent			....		
Octane No. A.S.T.M. motor method			20		
100 cc. distillation:					
I.B.P., °F.			152		
10 per cent			190		
50 per cent			278		
90 per cent			360		
Endpoint, °F.			389		
Operating conditions—					
Pressure, pounds per square inch	1000	1000	1000	1000	1000
Furnace discharge, °F.	940	954	965	975	985
Reaction chamber, °F.	890	905	915	922	935
Feed rate, gal./hr.	2.00	1.97	1.98	2.01	1.98
Cracking results—					
Gasoline:					
Yield, per cent by volume of charge	82.4	75.2	73.4	69.0	65.5
Gravity, °A.P.I.	63.0	62.4	62.2	61.6	61.0
Sulfur, per cent	....	....	0.04	....	....
Octane No. A.S.T.M. motor method	51	56	61	63	67
100 cc. distillation:					
I.B.P., °F.	105	97	101	97	94
10 per cent	154	148	143	143	142
20 per cent	182	177	168	195	193
50 per cent	252	243	239	239	235
90 per cent	368	357	355	359	360
Endpoint, °F.	396	393	384	390	396
Residuum:					
Yield, per cent by volume of charge	3.5	4.5	4.4	3.4	4.3
Gravity, °A.P.I.	16.2	14.7	15.6	....	8.5
Gasoline content, per cent	4.5	3.0	4.0	....	0.5
Liquid volume loss, per cent	14.1	20 3	22.2	27.6	30.2
Gas:					
Cu. ft./bbl. of charge	381	545	667	709	789
Higher olefins, per cent by volume	14.3	10.2	....	....	....

TABLE 3—REFORMING MID-CONTINENT STOCKS

Charging stock—	Straightrun gasoline				Naphtha			
Type:								
Gravity, °A.P.I.	59.8				53.6			
Sulfur, per cent	....				....			
Octane No. A.S.T.M. M.M.	42				34			
100 cc. distillation:								
I.B.P., °F.	115				222			
10 per cent	177				263			
50 per cent	277				309			
90 per cent	347				353			
Endpoint, °F.	383				385			
Operating conditions—								
Pressure, lbs. per sq. in.	500	500	500	500	500	500	502	500
Furnace discharge, °F.	950	976	975	1000	951	977	1000	1000
Reaction chamber, °F.	900	924	924	950	900	926	950	952
Feed rate, gal./hr.	1.97	1.93	1.82	1.91	2.46	3.12	2.45	2.03
Cracking results—								
Gasoline:								
Yield, % by vol. of charge	89.1	82.7	81.7	74.7	91.2	87.5	81.3	74.3
Gravity, °A.P.I.	60.6	60.5	60.9	59.1	57.9	57.3	58.0	55.5
Octane No. A.S.T.M. M.M.	62	66	67	70	60	63	67	70
100 cc. distillation:								
I.B.P., °F.	106	93	104	89	110	83	81	91
10 per cent	158	147	154	146	188	184	169	164
20 per cent	194	186	186	180	228	229	212	204
50 per cent	264	260	255	259	277	286	284	280
90 per cent	352	352	346	356	336	346	359	358
Endpoint, °F.	374	371	376	379	371	373	382	382
Residuum:								
Yield, % by vol. of charge	0.9	1.0	1.2	1.3	1.5	0.7	0.7	2.5
Gravity, °A.P.I.	10.7	2.1	—0.6	—0.7	1.9	—1.8	—4.0	—4.5
Liquid vol. loss, per cent	10.0	16.3	17.1	24.0	7.3	11.8	18.0	23.2
Gas, cu. ft./bbl. of charge	177	352	386	611	182	266	612	762

duced with an endpoint similar to or higher than that of the charge as with the light naphtha, the residuum production increases with increasing conversion through polymerization. When a gasoline of considerably lower endpoint than the charge is produced, as conversion is increased, a greater portion of the charge boiling above the gasoline endpoint is converted to material in the gasoline boiling range. With the heavy Califor-

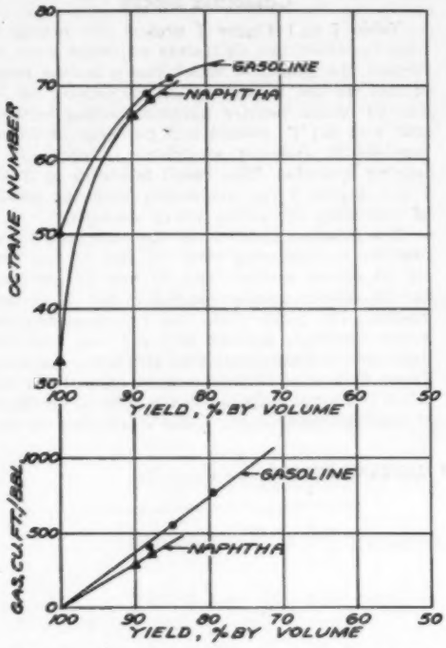

Fig. 6—Reforming Rocky Mountain stocks

nia naphtha, the increased conversion of the high boiling fraction more than compensates for the increased polymerization as conversion increases, and a reduction in the production of residuum results.

Mexican Stocks

From Naranjos crude, three reforming stocks were obtained: a 50 octane 311°F. endpoint light gasoline, a 41 octane 402°F. endpoint gasoline, and an 18 octane 320° to 415°F. naphtha.

In reforming these stocks to 65 octane num-

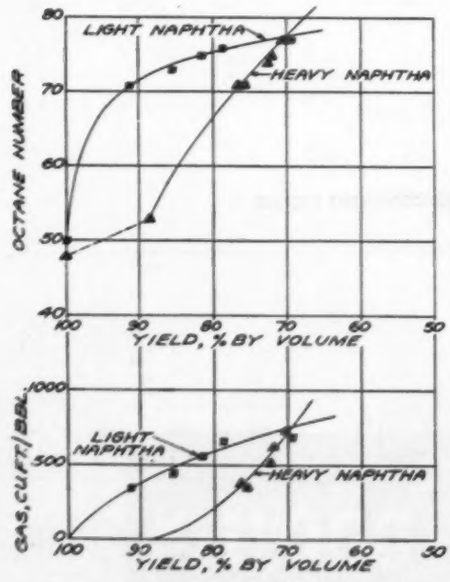

Fig. 7—Reforming California stocks

ber, the yields in order are 79, 93 and 81 per cent, while for 70 octane number the yields are 70, 73 and 72 per cent, shown in Table 8. The convergence of the yield-octane number curves in Figure 8 is particularly noticeable with these results, the light gasoline in fact, producing lower yields of 70 octane product than the gasoline or naphtha in spite of its higher initial octane rating. As with the Pennsylvania stocks, the increase in volatility with conversion is greatest with the naphtha, less with the gasoline, and slight with the light gasoline.

Other Foreign Stocks

In addition to the Mexican stocks, naphthas from a variety of foreign sources were also reformed as shown in Table 9.

A Trinidad naphtha boiling between 263° and 436°F. produced gasolines of exceptionally high octane number; the value corresponding to 81 per cent yield was 77 while at 61 per cent yield an 80 octane number product was obtained.

Reforming a 45 octane Rumanian light naphtha to an 87 per cent yield produced a 65 octane product while at 78 per cent yield a 70 octane product was obtained. To produce an 80 octane number gasoline from this stock, the indicated yield was 54 per cent as shown in Figure 9.

The entire light fraction of Baba Gurgur, Iraq crude with a 506°F. endpoint was reformed with yields of 80 per cent of 65 octane gasoline and 66 per cent of 70 octane gasoline. The production of residuum was large because of the presence of heavy ends in the charge.

A 38 octane Persian naphtha produced 68 per cent of 73 octane and 62.7 per cent of 75 octane gasoline, while a naphtha of somewhat wider boiling range from a Ural Mountain (Bashkis) Russian crude produced 80.6 per cent of 72 octane and 70 per cent of 76 octane gasoline, although the initial octane number was also 38. This comparison indicates that the yield octane relation for reforming is not entirely dependent on octane number and average volatility of the charge.

Prefractionation

To demonstrate the advantages in separating a light high octane number gasoline from the charging stock, reforming the remaining naphtha and blending the light gasoline with the reformed naphtha, a series of tests was made on a Mid-Continent straightrun gasoline of 42 octane number. This gasoline was split into two fractions: 32.4 per cent of 309°F. endpoint, 59 octane number light gasoline, and 67.6 per cent of 385°F. endpoint, 34 octane number naphtha. The results obtained in blending the 59 octane number gasoline with the reformed naphtha are given in Table 10 with the results of reforming the entire gasoline for direct comparison.

When the light gasoline was blended with the reformed naphtha in the proportion produced, a yield-octane number relation was found which

TABLE 4—REFORMING EAST-WEST TEXAS STOCKS

Charging stock—	East and West Texas straightrun gasoline							
Type:								
Gravity, °A.P.I.				58.8				
Sulfur, per cent				0.14				
Octane No. A.S.T.M. M.M.				54				
100 cc. distillation:								
I.B.P., °F.				99				
10 per cent				168				
50 per cent				262				
90 per cent				360				
Endpoint, °F.				406				
Operating conditions—								
Pressure, lbs. per sq. in.	750	750	750	752	750	745	750	750
Furnace discharge, °F.	915	920	945	960	975	994	995	995
Reaction chamber, °F.	867	880	899	909	925	993	995	993
Feed rate, gal./hr.	2.02	2.00	2.01	1.94	1.98	3.93	3.02	2.06
Cracking results—								
Gasoline:								
Yield, % by vol. of charge	92.6	90.4	88.7	82.7	76.0	62.8	48.9	37.9
Gravity, °A.P.I.	61.0	59.9	58.8	58.7	58.2	52.2	49.8	45.7
Sulfur, per cent	....	....	0.05	....	....	....	....	....
Octane No. A.S.T.M. M.M.	64	66	68	71	72	76	78	80
100 cc. distillation:								
I.B.P., °F.	114	101	101	96	96	102	100	106
10 per cent	160	151	150	146	146	154	158	158
20 per cent	168	183	179	176	174	186	186	184
50 per cent	248	246	245	242	238	254	244	234
90 per cent	346	350	364	372	354	397	362	359
Endpoint, °F.	398	387	402	411	396	436	416	429
Residuum:								
Yield, % by vol. of charge	1.4	1.3	0.0	0.6	3.5	1.1	5.3	5.7
Gravity, °A.P.I.	....	24.0	....	20.8	16.1	7.1	2.8	0.3
Gasoline content, per cent	....	24.0	....	5.0	2.0	3.0	1.8	2.0
Liquid volume loss, per cent	6.0	8.3	11.3	16.7	20.5	36.1	45.8	56.4
Gas:								
Cu. ft./bbl. of charge	206	286	380	499	640	1125	1430	1780
Higher olefins, % by volume	14.8	....	13.2	....	14.1	....	8.4	....

TABLE 5—REFORMING WEST TEXAS STOCKS

Charging stock—	Straightrun gasoline			Straightrun naphtha		
Type:						
Gravity, °A.P.I.		58.1			51.5	
Sulfur, per cent		0.18			0.19	
Octane No. A.S.T.M. motor method		60			50	
100 cc. distillation:						
I.B.P., °F.		95			220	
10 per cent		160			261	
50 per cent		274			312	
90 per cent		364			370	
Endpoint, °F.		392			410	
Operating conditions—						
Pressure, pounds per square inch	750	750	750	750	750	750
Furnace discharge, °F.	925	924	950	935	950	950
Reaction chamber, °F.	875	875	896	882	898	899
Feed rate, gal./hr.	3.29	3.30	3.30	2.49	2.13	1.58
Cracking results—						
Gasoline:						
Yield, per cent by volume of charge	93.2	91.8	88.1	84.8	81.1	77.4
Gravity, °A.P.I.	59.4	59.5	59.4	54.7	54.5	54.2
Sulfur, per cent	....	....	0.05	0.05	....	....
Octane No. A.S.T.M. motor method	69	70	72	70	73	75
100 cc. distillation:						
I.B.P., °F.	100	94	96	102	91	100
10 per cent	157	154	148	182	171	168
20 per cent	192	190	178	224	214	203
50 per cent	262	262	253	284	280	277
90 per cent	366	360	366	356	378	368
Endpoint, °F.	396	396	400	400	403	389
Residuum:						
Yield, per cent by volume of charge	1.2	1.1	2.1	5.8	5.7	4.8
Gravity, °A.P.I.	16.4	17.6	12.9	19.9	11.7	12.2
Gasoline content, per cent	3.0	4.0	3.5	4.0	4.0	3.0
Liquid volume loss, per cent	5.5	7.1	9.8	9.4	13.2	17.8
Gas, cu. ft./bbl. of charge	209	291	369	363	535	629

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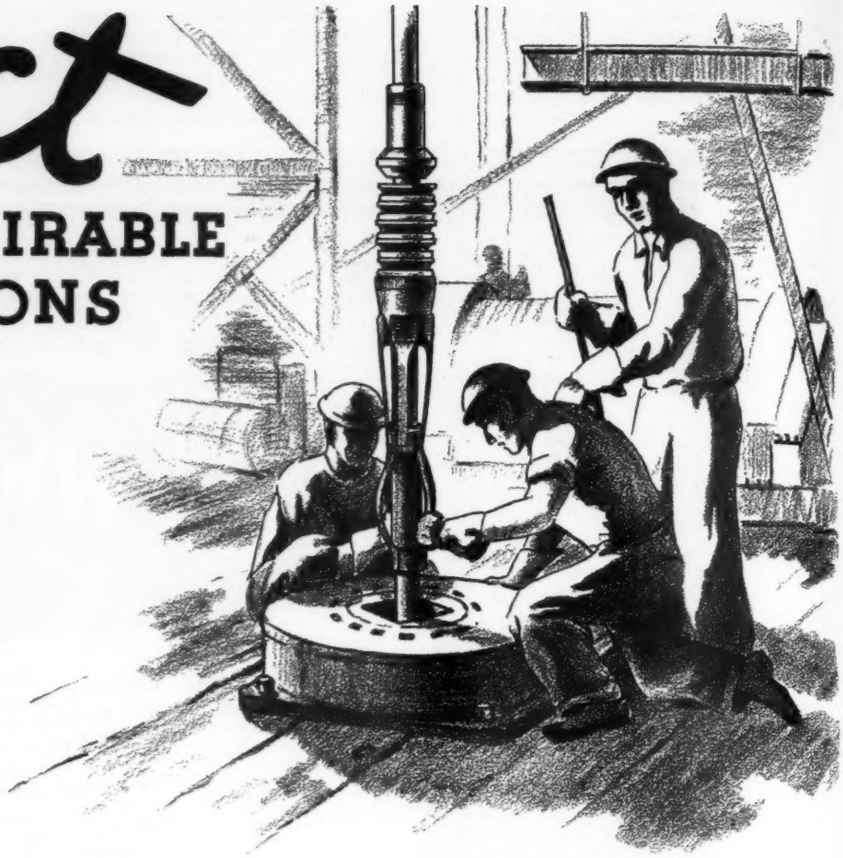

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PACKERS TO WASH FORMATION: Through new perforations or old slotted liners. Combination of hydrostatic pressure and suction. Sand and other solids forced into liner below Packer—no chance to cause trouble. Desirable washing action of vertical stream between outside of liner and producing formation.

PACKERS TO BLOCK OFF LEAKS AND CAVES: Thin-Wall Packer is set below bad spot and enough casing run above it to extend above fluid level or to surface. When desirable to pack off above leak also, two Packers are used, with enough casing between Packers to bridge leak.

LINER HANGERS TO PREVENT SAGGING: Liner is kept from resting on bottom of well, thus removing strains that frequently cause sagging and collapse of liner. Proven features and materials used in Lane-Wells Packers are also used in our Liner-Hangers.

Gun Perforator Service

An established success of three years' standing in the United States, Lane-Wells Gun Perforator Service is now being extended to Venezuela and Trinidad, and will reach other foreign fields during 1936. (Fully protected by U. S. and foreign patents.) Inquiries are invited.

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Our New York Office, at 420 Lexington Avenue, in charge of Mr. John H. Baird, is maintained for the sole purpose of handling export inqiries and orders. The cable address is *Wellslane, New York.*

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Our 72-Page Catalog, Export Edition, contains complete informational bulletins on Packers, Liner Hangers and Gun Perforator Service. "Hot Shots," our monthly house publication, carries items of interest to oil men . . . at home and abroad. . . Both will be mailed you on request, without obligation.

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gives an advantage of about 3 per cent for octane numbers of 57 to 62, for prefractionation, but at higher octane numbers this advantage disappeared as shown in Table 10 and Figure 10, and for octane numbers above 66 reforming the entire gasolines gives considerably greater yields.

These data indicate that when the charge contains an appreciable proportion of light gasoline having an octane number equal to or slightly lower than that desired in the final product. an appreciable gain in yield may be obtained by prefractionating the charge and reforming only the low octane naphtha. This procedure results in a final gasoline having greater volatility than that obtained in reforming the entire gasoline.

High Volatility by Reforming

Because of the studies on the effect of volatility in starting and warming up motors and the approach toward aviation type fuels for modern motor cars, volatility has become a prime quality of gasoline.[5,6] Prefractionation with reforming offers a method of producing high volatility gasolines with a minimum reduction in yield. In Table 10 the volatility of the gasolines produced in prefractionating and reforming is considerably greater than that from reforming the entire gasoline, as shown by the differences in the 50 per cent distillation point of over 20°F. for a given octane number, while the yields of 64 octane number gasoline are identical. By removing a lighter fraction of higher octane number in prefractionating, the point of equal yield for the two operations will fall at a higher level, and a final blended gasoline of greater volatility will result. Where very high volatility is required, the charge may be separated into three or more fractions and each reformed to the desired octane number with a resulting gain in final volatility.

Treatment of Reformed Gasolines

While reformed gasolines are not different from gasolines produced from cracking heavy oils, the relatively good quality of the charging stocks used in reforming result in products which require little or no treating. Detailed properties of several reformed gasolines are shown in Table 11 with the results of sweetening and acid treating where desired. These results show that where a dyed gasoline may be sold, a marketable gasoline of low gum, low sulfur, and good storage stability may be obtained from a reformed product by the addition of dye and inhibitor, after sweetening when indicated. With high sulfur charging stocks or when water-white products are required, a light acid treat provides the necessary improvement. In commercial installation, clay treatment of the gasoline vapors provides improved color and reduces the gum content of the product at low cost.

An important secondary result of reforming is the sulfur reduction obtained by converting

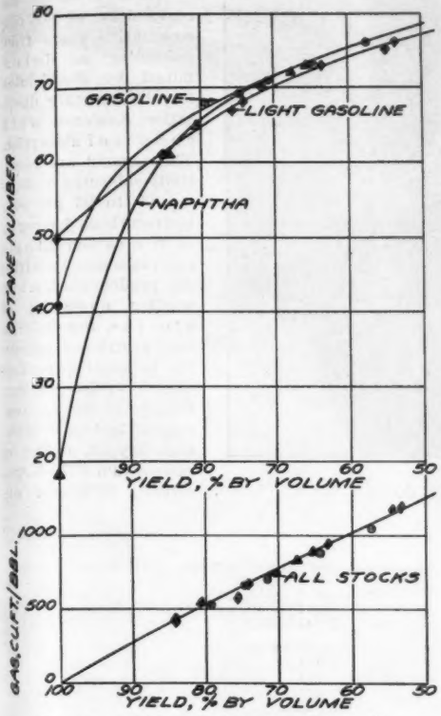


Fig. 8—Reforming Naranjos stocks

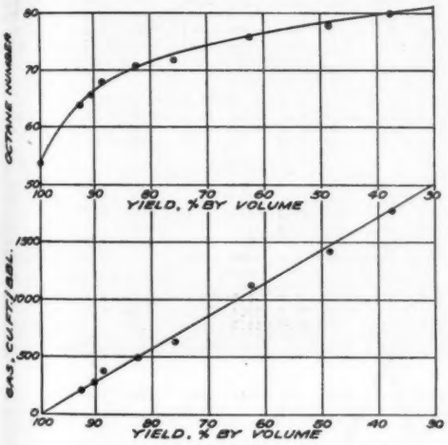


Fig. 9—Reforming Rumanian naphtha

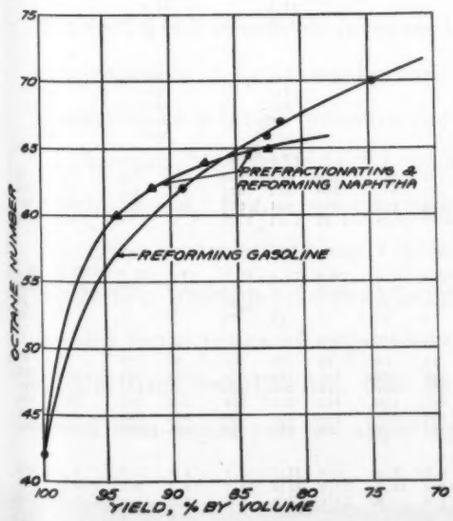


Fig. 10—Reforming Mid-Continent stocks with prefractionation

TABLE 6—REFORMING ROCKY MOUNTAIN STOCKS

	Montana				
Charging stock—	Straightrun gasoline			Straightrun naphtha	
Type:					
Gravity, °A.P.I.	59.8			55.1	
Sulfur, per cent	0.11			0.03	
Octane No. A.S.T.M. motor method	51			33	
100 cc. distillation:					
I.B.P., °F.	126			188	
10 per cent	186			226	
50 per cent	212			312	
90 per cent	340			412	
Endpoint, °F.	381			430	
Operating conditions—					
Pressure, pounds per square inch	500	500	500	500	500
Furnace discharge, °F.	950	965	965	950	946
Reaction chamber, °F.	900	915	915	902	906
Feed rate, gal./hr.	1.96	1.95	1.95	1.86	2.52
Cracking results—					
Gasoline:					
Yield, per cent by volume of charge	88.0	85.0	79.5	90.0	87.7
Gravity, °A.P.I.	61.3	59.2	60.7	60.9	61.6
Sulfur, per cent	....	....	0.03	....	0.03
Octane No. A.S.T.M. motor method	69	71	72	66	68
100 cc. distillation:					
I.B.P., °F.	94	97	96	99	96
10 per cent	147	144	146	173	168
20 per cent	179	177	176	207	201
50 per cent	251	250	243	267	263
90 per cent	347	361	336	347	342
Endpoint, °F.	386	397	386	375	381
Residuum:					
Yield, per cent by volume of charge	0.0	0.0	3.8	1.2	1.3
Gravity, °A.P.I.	....	....	14.6	....	....
Gasoline content, per cent	....	....	3.0	....	....
Liquid volume loss, per cent	12.0	15.0	16.7	8.8	11.0
Gas, cu. ft./bbl. of charge	406	554	778	300	360

TABLE 7—REFORMING CALIFORNIA STOCKS

	Light naphtha					Heavy naphtha					
Charging stock—											
Type:											
Gravity, °A.P.I.	46.6					42.4					
Sulfur, per cent	0.10					0.09					
Octane No. A.S.T.M. M.M.	50					48					
100 cc. distillation:											
I.B.P., °F.	303					299					
10 per cent	311					325					
50 per cent	320					361					
90 per cent	340					400					
Endpoint, °F.	364					427					
Operating conditions—											
Pressure, lbs. per sq. in.	750	750	750	750	750	....	750	750	750	750	750
Furnace discharge, °F.	951	965	975	975	975	....	940	940	950	960	970
Reaction chamber, °F.	901	915	926	923	925	....	890	890	900	910	922
Feed rate, gal./hr.	1.99	1.96	1.95	1.54	1.37	....	1.96	1.99	2.02	2.01	2.02
Cracking results—											
Gasoline:	Reforming					Topping	Reforming				
Yield, % by vol. of charge	91.2	85.6	81.7	78.8	69.2	88.8	75.6	76.6	72.4	72.0	70.5
Gravity, °A.P.I.	49.0	49.0	49.2	48.2	48.3	43.0	47.6	47.5	48.3	47.6	47.5
Sulfur, per cent	....	....	0.07	....	....	....	....	....	0.08	....	....
Octane No. A.S.T.M. M.M.	71	73	75	76	77	53	71	71	74	75	77
100 cc. distillation:											
I.B.P., °F.	100	88	106	96	93	296	102	101	90	89	88
10 per cent	214	202	190	184	179	320	206	207	180	178	178
20 per cent	274	262	245	244	236	328	264	263	242	241	236
50 per cent	312	307	304	306	296	350	328	329	314	317	316
90 per cent	356	356	353	362	350	379	378	380	376	382	380
Endpoint, °F.	394	402	394	422	381	400	404	401	401	408	409
Residuum:											
Yield, % by vol. of charge	1.5	4.1	4.5	4.7	8.2	11.0	15.6	15.4	17.1	13.7	12.8
Gravity, °A.P.I.	18.3	15.3	14.3	7.3	9.1	37.3	26.1	23.6	21.0	20.5	17.7
Gasoline content, per cent	7.0	3.5	5.0	Trace	3.0	....	0.0	0.0	7.0	3.0	2.0
Liquid volume loss, per cent	7.3	10.3	13.3	16.5	22.6	0.2	8.3	8.0	10.5	14.3	16.7
Gas:											
Cu. ft./bbl. of charge	342	448	560	666	695	....	350	389	509	628	735
Higher olefins, % by volume	8.6	...	...	8.0	7.6	....	7.7	...	6.6	...	...

many sulfur-containing compounds in the gasoline to sulfur-free compounds and hydrogen sulfide which passes off with the gas. Table 12 presents a condensed summary of the sulfur reduction obtained in reforming the various stocks without sweetening or caustic washing the product. Except for the heavy naphthas, sulfur reduction ranges from 30 to 75 per cent of the sulfur in the charging stock. Thus reforming gasolines and naphthas effectively reduces the sulfur content of the product desired.

Cracked gases from reforming operations contain olefinic and paraffinic hydrocarbons which have utility as sources for synthetic

Reforming unit in France with capacity of 4,000 barrels daily

chemicals, polymer gasoline, and domestic or industrial fuels.

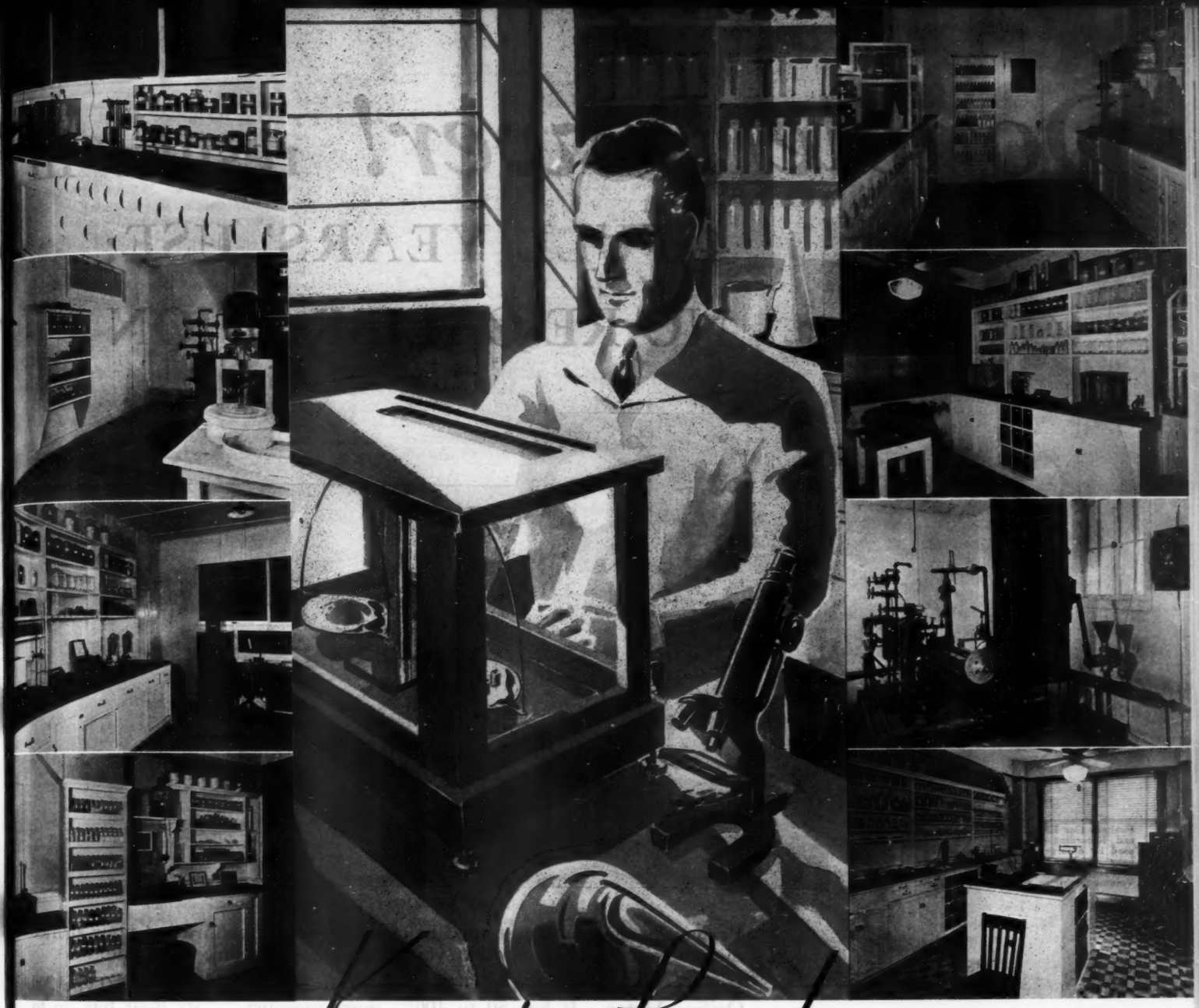
Table 13 shows the composition of two representative gases from reforming as determined by Podbielniak low temperature distillation combined with chemical absorption. These gases are essentially mixtures containing 90 to 95 per cent hydrocarbons having up to five carbon atoms per molecule. Paraffins are predominant with smaller quantities of olefins, the diolefins and acetylenes appearing in small quantities. The 5 to 10 per cent balance of the gas consists of hydrogen, nitrogen, oxygen, oxides of carbon and hydrogen sulfide. Hydrogen sul-

TABLE 8—REFORMING MEXICAN STOCKS

Charging stock—	Naranjos light gasoline						Naranjos straightrun gasoline						Naranjos naphtha			
Type:																
Gravity, °A.P.I.	67.4						59.9						49.8			
Sulfur, per cent	0.09						0.22						0.35			
Octane No. A.S.T.M. motor method	50						41						18			
100 cc. distillation:																
I.B.P., °F.	112						121						320			
10 per cent	159						184						330			
50 per cent	220						277						350			
90 per cent	273						363						370			
Endpoint, °F.	311						402						415			
Operating conditions—																
Pressure, pounds per square inch	500	500	500	750	750	720	750	750	750	750	750	750	500	500	500	500
Furnace discharge, °F.	950	975	990	990	1000	1000	961	960	975	970	980	990	950	975	975	975
Reaction chamber, °F.	900	926	940	941	950	955	910	912	925	920	930	941	903	923	925	926
Feed rate, gal./hr.	1.96	2.01	1.96	1.71	1.71	1.80	2.05	1.54	2.01	1.50	1.51	1.44	2.01	2.47	1.44	1.39
Cracking results—																
Gasoline:																
Yield, per cent by volume of charge	84.1	75.9	74.1	63.5	54.5	53.6	79.4	74.7	71.9	70.9	64.8	57.6	84.2	80.8	67.9	65.6
Gravity, °A.P.I.	65.9	64.6	64.3	62.6	60.3	59.6	59.2	59.5	59.1	60.3	59.1	56.6	58.9	57.8	60.3	60.1
Sulfur, per cent	....	....	....	....	0.06	....	....	....	....	....	0.13	....	0.21	....	0.19	....
Octane No. A.S.T.M. motor method	61	67	68	73	75	76	68	69	70	71	73	76	61	65	72	72
100 cc. distillation:																
I.B.P., °F.	102	100	91	87	91	90	91	94	76	84	91	84	88	90	93	89
10 per cent	146	138	134	131	137	132	140	142	140	130	134	142	154	146	131	133
20 per cent	168	162	158	157	166	157	171	167	168	162	164	170	216	200	165	167
50 per cent	214	214	212	215	215	213	250	244	240	239	238	244	310	302	274	288
90 per cent	281	315	304	324	327	347	371	350	356	366	370	374	352	352	339	329
Endpoint, °F.	340	379	405	372	413	414	405	384	396	400	400	406	376	374	358	354
Residuum:																
Yield, per cent by volume of charge	0.0	0.0	0.0	1.0	3.4	2.9	2.0	3.8	4.7	3.3	5.3	5.0	3.2	3.4	7.2	6.8
Gravity, °A.P.I.	....	....	....	12.3	2.8	1.9	12.6	....	11.2	49.7	12.4	9.2	4.4	6.3	1.1	1.5
Gasoline content, per cent	....	....	....	16.0	4.0	3.9	0.5	....	1.0	89.0	11.5	5.0	....	....	....	....
Liquid volume loss, per cent	15.9	24.2	25.9	35.5	42.1	43.5	18.6	21.5	23.4	25.8	29.9	37.4	12.6	15.8	24.9	27.6
Gas:																
Cu. ft./bbl. of charge	401	570	664	923	1160	1175	523	656	690	730	868	1030	436	548	814	875
Higher olefins, per cent by volume	....	....	....	....	....	....	12.7	....	....	9.0	....	8.8	....	....	....	....

TABLE 9—REFORMING FOREIGN STOCKS

Charging stock—	Trinidad heavy naphtha	Rumanian light crude							Iraq crude tops (Baba Gurgur)			Persian naphtha		Russian (Ural Mt.) naphtha	
Type:															
Gravity, °A.P.I.	41.6	53.3							58.5			51.1		50.4	
Sulfur, per cent	0.07	0.02							0.16			0.14		0.85	
Octane No. A.S.T.M. motor method	....	45							....			38		38	
100 cc. distillation:															
I.B.P., °F.	263	223							124			265		231	
10 per cent	303	253							176			282		266	
50 per cent	348	284							285			308		310	
90 per cent	398	319							416			353		384	
Endpoint, °F.	436	350							506			406		422	
Operating conditions—															
Pressure, pounds per square inch	750	750	750	750	750	750	750	750	750	500	500	500	750	750	755	755
Furnace discharge, °F.	975	975	975	950	950	955	960	985	985	950	962	975	975	955	955	950
Reaction chamber, °F.	922	925	925	902	900	914	910	938	923	900	911	925	925	947	905	903
Feed rate, gal./hr.	1.97	1.95	1.54	2.09	1.45	1.50	1.48	1.50	1.18	1.96	1.94	1.99	1.73	1.74	1.36	1.20
Cracking results—																
Gasoline:																
Yield, per cent by volume of charge	81.1	69.9	61.7	92.0	80.4	76.1	71.8	66.8	61.6	79.9	72.1	65.9	68.2	62.7	80.6	69.9
Gravity, °A.P.I.	46.1	46.4	48.1	55.2	56.6	55.4	54.9	52.7	52.8	63.2	63.6	62.2	50.8	50.8	52.9	53.9
Sulfur, per cent	....	0.06	....	....	....	....	....	0.02	0.02	....	....	0.05	....	0.05	0.26	0.26
Octane No. A.S.T.M. motor method	77	78	80	68	69	72	72	75	77	65	68	70	73	75	72	76
100 cc. distillation:																
I.B.P., °F.	100	92	103	106	92	100	90	94	96	83	91	96	99	88	94	95
10 per cent	191	173	172	138	132	169	168	186	162	141	138	136	165	167	169	167
20 per cent	245	288	215	228	218	212	210	207	202	171	166	166	217	224	208	206
50 per cent	315	308	281	276	268	259	260	261	258	243	237	240	281	289	281	276
90 per cent	379	386	337	326	320	320	316	324	318	330	338	350	341	366	376	382
Endpoint, °F.	402	403	348	350	356	346	350	357	361	380	350	383	395	397	403	398
Residuum:																
Yield, per cent by volume of charge	6.7	11.2	9.7	4.2	7.4	6.9	7.2	6.8	7.3	5.4	11.5	9.5	5.8	5.9	4.2	8.2
Gravity, °A.P.I.	17.4	16.9	3.2	20.9	28.8	24.1	16.0	19.4	13.7	37.0	33.4	26.1	14.4	9.3	6.2	6.0
Gasoline content, per cent	....	....	....	0.0	7.0	trace	0.0	1.0	0.0	19.0	4.5	2.0	2.0	3.0	1.5	2.0
Liquid volume loss, per cent	12.2	13.8	25.6	13.8	12.2	17.0	21.0	26.4	31.1	14.7	16.4	24.6	26.0	31.4	15.2	21.9
Gas:																
Cu. ft./bbl. of charge	574	633	1072	447	448	597	664	906	1022	427	534	718	788	910	572	772
Higher olefins, per cent by volume	....	....	....	12.4	....	10.1	....	9.5	....	....	....	....	....	....	....	6.8



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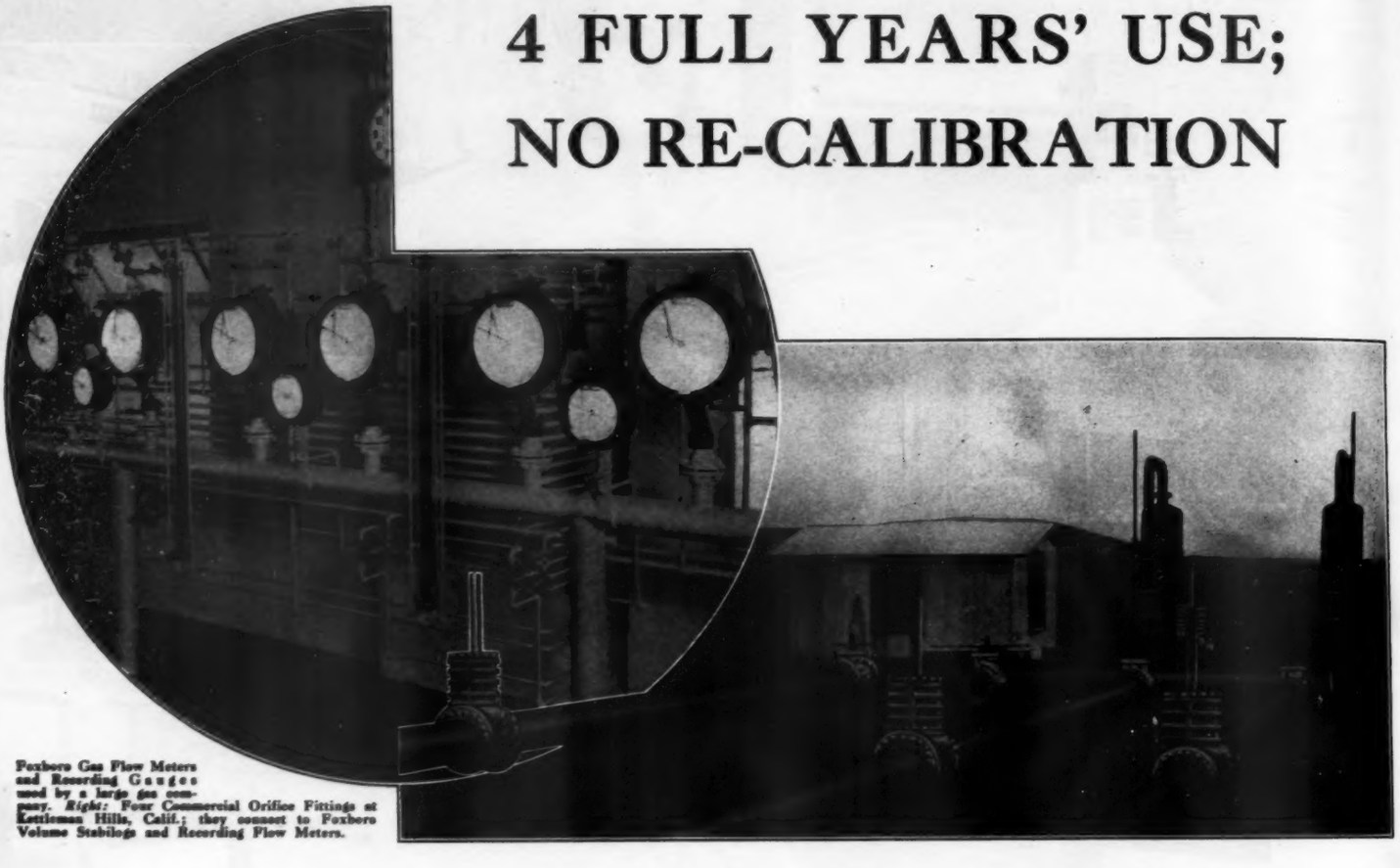

Foxboro Gas Flow Meters and Recording Gauges used by a large gas company. *Right:* Four Commercial Orifice Fittings at Kettleman Hills, Calif.; they connect to Foxboro Volume Stabilogs and Recording Flow Meters.

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fide is usually present in quantities of less than 0.5 per cent although with high sulfur stocks this value may increase to over 5 per cent.

The high heating value of these gases makes them particularly useful for industrial purposes. The heat content, varying with the gas density, is 1,500 to 2,000 B.t.u. per cubic foot, providing theoretical flame temperatures as high as 3,800° F. in air or 9,500° F. in oxygen. The temperatures actually obtainable are, of course, lower because of dissociation of the products, radiation, etc., but temperatures of 3,470° F. are obtainable by burning the gas in air without preheating.

Polymer Gasoline and Other By-Products of Gaseous Olefins

The chemical activity of the olefins, and particularly of propylene and the butylenes makes these components of the gas of great interest. The commercial production of higher alcohols from the olefins in cracking plant gas has been established for several years and commercial polymerization of these olefins to gasoline having a blending value of 115 octane number in straight-run gasoline has been announced [7,8]. The production of synthetic rubber, resins and lubricating oils from olefinic compounds has also been in progress for some time, while by well known methods, many aliphatic derivatives can be produced, such as glycols, amines, halides, ethers, ketones, and acids.[9]

The ethylene and higher olefins (propylene, butylene, etc.) content of the gases produced in reforming the various stocks shown in Table 1 through 9 are summarized in Table 14. These data show that for any given stock, as the gas production increases with increased conversion, the concentration of olefins in the gas tends to decrease, although the total olefin production increases. The more paraffinic stocks, such as Michigan, and East-West Texas, show higher concentrations of olefins in the gas than the naphthenic stocks as those from California. Thus, paradoxically, the highest yield of high octane polymerized gasoline may be obtained in reforming stocks of the lowest octane rating.

TABLE 10—REFORMING MID-CONTINENT STOCKS WITH PREFRACTIONATION

Type of operation—	Prefractionation	Naphtha reforming with prefractionation				Gasoline reforming			
Final gasoline composition, per cent of straightrun gasoline:									
Light gasoline	32.4	32.4	32.4	32.4	32.4	....	....	....	....
Reformed gasoline	....	....	....	....	....	89.1	82.7	81.7	74.7
Reformed naphtha	....	61.7	59.1	55.0	50.2	....	....	....	....
Total gasoline	....	94.1	91.5	87.4	82.6	89.1	82.7	81.7	74.7
Analyses of total gasoline:									
Gravity, °A.P.I.	72.4	61.6	61.9	60.4	60.5	60.6	60.5	60.9	59.1
Octane No. A.S.T.M. motor method	59	60	62	64	65	62	66	67	70
100 cc. distillation:									
I.B.P., °F.	94	98	97	91	90	106	93	104	89
10 per cent	125	151	142	138	138	158	147	154	146
30 per cent	145	184	175	170	167	194	186	186	180
50 per cent	191	251	244	238	236	264	260	255	259
90 per cent	256	334	338	335	334	352	353	346	356
Endpoint, °F.	309	372	366	366	366	374	371	376	379

TABLE 12—SULFUR REDUCTION IN REFORMING

Source—	Charging stock Type	Charging stock Sulfur per cent	Gasoline Yield per cent	Gasoline Sulfur per cent	Sulfur reduction per cent
Pennsylvania	Naphtha	0.04	70.5	0.02	50
Pennsylvania	Naphtha	0.04	62.8	0.02	50
East-West Texas	Straightrun gasoline	0.14	87.9	0.05	64
West Texas	Straightrun gasoline	0.18	87.3	0.05	72
Montana	Straightrun gasoline	0.11	77.9	0.03	73
Montana	Heavy naphtha	0.09	71.4	0.08	11
California	Light naphtha	0.10	80.6	0.07	30
California	Heavy naphtha	0.09	71.4	0.08	11
Mexico	Light gasoline	0.09	52.5	0.06	33
Mexico	Straightrun gasoline	0.22	63.0	0.13	41
Mexico	Naphtha	0.35	83.3	0.21	40
Mexico	Naphtha	0.35	66.3	0.19	46
Trinidad	Heavy naphtha	0.07	68.6	0.06	14
Persia	Naphtha	0.14	60.8	0 05	64
Russia (Ural Mt.)	Naphtha	0.85	68.3–79.4	0.26	69

Commercial Reforming

While in several instances commercial heavy oil cracking units using reaction chambers have been successfully adapted to reforming operation, it has been found desirable to eliminate the reaction chamber in constructing new reforming equipment. The plant then consists essentially of a cold-oil charging pump, heating and soaking furnace, and combined fractionating column and flash chamber. The results obtained in two such modern units are given in Table 15. These commercial units operate for over 90 days continuously, processing over 1,000,000 bbls. of naphtha during a run.

It will be noted that somewhat better yields of a given octane number gasoline were obtained in this operation than in the small scale equipment using a reaction chamber. These differences are attributed to the more effective stabilization and the use of higher cracking temperatures in commercial operation.

Conclusions

From the foregoing data, a number of conclusions may be drawn:

1. From any type of gasoline or naphtha, reformed gasolines of 70 octane number or higher may be obtained. With increased conversion or severity of cracking the octane number increases and yield decreases, the maximum octane obtain-

TABLE 11—TREATMENT OF REFORMED GASOLINE

Charging stock— Type— Treatment	Pennsylvania light gasoline None	Pennsylvania light gasoline Acid	Mt. Pleasant gasoline None	Mid-Continent heavy naphtha None	Mid-Continent heavy naphtha Acid	California heavy naphtha None	California heavy naphtha Sweetened	California heavy naphtha Acid	Russian (Ural Mt.) naphtha None	Russian (Ural Mt.) naphtha Acid
Acid, lb./bbl.	....	1	....	....	2	....	....	2	....	4
Sodium plumbite, per cent 16° Be.	....	None	None	....	None	....	3	....	....	....
Sodium plumbite, per cent 8° Be.	....	None	None	....	None	....	....	1	....	3
Treating losses:										
Acid solution loss, per cent	....	0.8	....	....	1.1	....	....	0.6	....	0.8
Polymerization loss, per cent	....	0.3	....	....	0.9	....	....	0 0	.. .	0.4
Distillation loss, per cent	....	0.6	....	....	3.1	....	....	3.2	....	2.0
Total loss, per cent	....	1.7	....	....	5.1	....	....	3.8	....	3.2
Estimated total loss for 10-lb. vapor pressure, per cent	....	1.6	....	....	....	....	....	1.8	....	2.5
Yields:										
Finished cracked gasoline—per cent raw gasoline	....	98.4	....	....	....	....	....	98.2	....	97.5
Raw gasoline—per cent charging stock	92.0	92.0	73.4	74.3	74.3	72.4	72.4	72.4	....	69.9
Finished cracked gasoline—per cent charging stock	....	90.5	....	....	....	....	....	71.0	....	....
Analyses of treated products:										
Gravity, °A.P.I.	65.6	64.4	62.2	55.5	53.2	49.1	....	46.9	53.9	51.4
Color, °Saybolt	18	30+	6	....	30+	Yel.	Yel.	19	Yel.	30+
Color stability*	....	30	....	....	28	....	....	16	....	23
Corrosion, copper strip	Neg.	Neg.	Neg.	....	Neg.	Pos.	Neg.	Neg.	Pos.	Neg.
Doctor test	Pos.	Neg.	Neg.	....	Neg.	Pos.	Neg.	Neg.	Pos.	Neg.
Gum, mg./100 cc. (copper dish):										
Without inhibitor	16	4	30	78	6	119	85	9	48	4
With 0.01 per cent Universal inhibitor	13	4	8	....	....	....	....	....	....	....
With 0.025 per cent Universal inhibitor	....	....	....	....	....	....	....	8	....	....
With 0.05 per cent Universal inhibitor	....	....	....	....	....	37	31	....	....	....
Sulfur, per cent	0.03	0.01	0.03	0.02	0.01	0 08	0.07	0.04	0.26	0.11
Vapor pressure, Reid, pounds per square inch	10.5	6.5	9.2	....	....	12.8	10.4	5.0	10.9	4.5
Oxygen bomb stability, induction period, min.:										
Without inhibitor	75	285	155	....	....	400	215	285	145	315
With 0.01 per cent Universal inhibitor	250	500+	270	....	....	....	....	....	....	....
With 0.025 per cent Universal inhibitor	....	....	....	....	....	....	....	860+	....	1040+
With 0.05 per cent Universal inhibitor	....	....	....	....	....	700	395	....	....	....
Octane No.—motor method	61	60	61	70	66	74	73	72	76	73
100 cc. distillation:										
I.B.P., °F.	105	124	101	91	112	90	....	118	95	126
5 per cent	134	146	126	137	150	144	....	164	140	164
10 per cent	152	156	143	164	176	180	....	194	167	185
20 per cent	180	180	168	204	216	242	....	242	206	217
50 per cent	236	226	239	280	277	314	....	310	276	269
90 per cent	322	290	355	358	342	375	..	365	352	336
Endpoint, °F.	365	342	384	382	380	401	....	398	398	390
Per cent over	97.0	98.5	97.5	97.0	98.0	95.0	....	98.0	95.0	98.5
Per cent bottoms	1.0	1.0	1.0	1.0	1.0	1.0	....	1.0	1.0	1.0
Per cent loss	2.0	0.5	1.5	3.0	1.0	4.0	....	1.0	4.0	0.5

*Color °Saybolt after exposure equivalent to two hours noon June sunlight.

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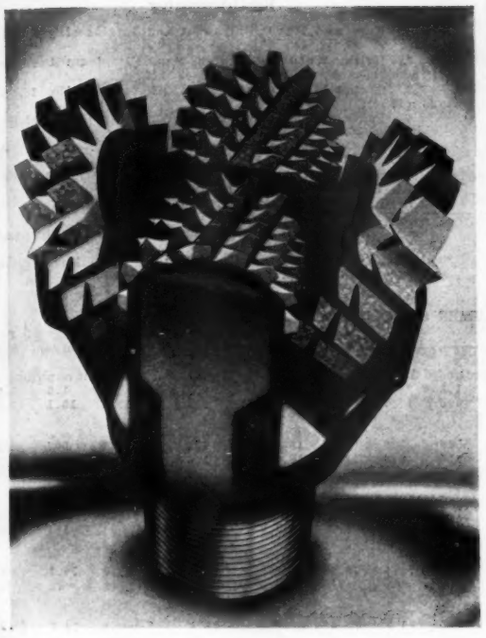

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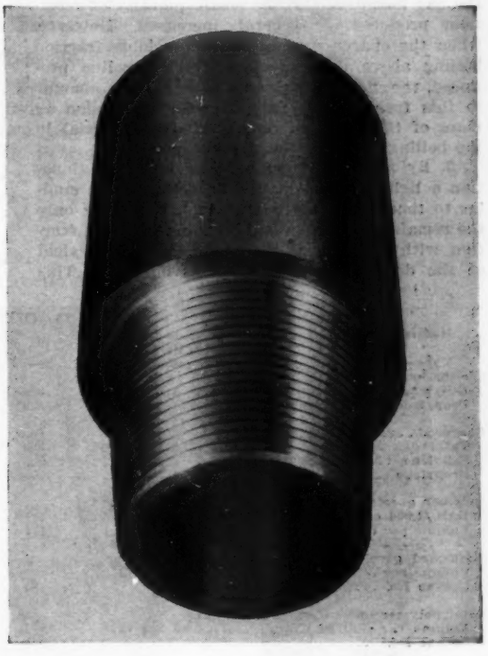

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able occurring only when the yield is reduced toward zero.

2. From any given source, the lighter fractions of higher octane rating produce higher yields for octane numbers in the lower range (below 55 to 60) but in the higher range (above 70 to 75) the differences in yields from the various fractions are small and may disappear entirely.

3. Although increase in octane numbers is the prime object of reforming, other advantages are obtained, notably an improvement in volatility. This improvement is least with a high volatility charge and greatest with a heavy naphtha, and is greater with higher conversions. At high conversion a full boiling range gasoline may be obtained from a heavy naphtha.

4. As the gasoline yield decreases in reforming, the gas increases and the small quantity of residuum produced, in general, increases. However, when the charge contains an appreciable fraction boiling above the endpoint of the gasoline produced, the yield of residuum is smaller in amount to this fraction, but may decrease conversion as more of this fraction is converted to material in the boiling range of the gasoline produced.

5. By removing from gasoline in prefractionation a light gasoline having an octane value similar to that of the desired product, reforming only the remaining naphtha and blending the light fraction with the reformed naphtha, a gain in yield of the desired octane number is obtained. This gain is accompanied by an increase in volatility of the final product. Three or more naphtha fractions may be separated and reformed separately with further gains in yield and volatility.

6. Treatment of reformed gasolines to market specifications usually requires nothing more than the addition of a dye and inhibitor, after sweetening when necessary. Since a sulfur reduction of 30 to 75 per cent accompanies the reforming of most stocks, a high sulfur, low octane stock may be converted to a low sulfur, high octane gasoline by reforming alone.

7. The gas produced in reforming is a fuel of high heating value, and contains olefinic compounds from which chemicals or high octane value polymer gasoline may be produced. By catalytic polymerization of the gases from reforming, the gasoline yield may be increased 1.5 to 5 per cent and the octane rating 1 to 2 points.

TABLE 13—ANALYSIS OF CRACKING PLANT GAS

Source—	Michigan Straightrun gasoline	Rumania Light naphtha
Type of stock—		
Density (air = 1.00)	1.229	1.030
Composition, per cent by volume:		
Hydrogen	2.2	4.7
Nitrogen	2.1	3.3
Carbon monoxide	0.2	.....
Oxygen	0.4	0.0
Carbon dioxide and hydrogen sulfide	0.5	.....
Methane	22.1	30.0
Ethylene	3.8	1.5
Ethane	20.2	25.6
Propylene	11.5	5.4
Propane	19.5	18.2
Iso-butylene	Trace	2.5
n-Butylene	8.7	1.3
Butanes	6.2	5.1
Pentanes and heavier hydrocarbons	2.6	2.4
Total	100.0	100.0
Unsaturates—total	24.0	10.7
Propylene and higher olefins—total	20.2	9.2
Pentanes and heavier hydrocarbons (as liquid):		
Gallons per 1,000 cu. ft.	0.95	0.9
Per cent by volume of charging stock	1.4	1.4
Heating value (calculated):		
B.t.u. per cu. ft.	1960	1787

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TABLE 14—OLEFINS IN REFORMING GAS AND AVAILABLE POLYMER GASOLINE

Reforming stock source—	Michigan (Mt. Pleasant)		East-West Texas				California					Mexico			Russia	Rumania		
Type—	straightrun gasoline		Straightrun gasoline				Light naphtha			Heavy naphtha		Straightrun gasoline			Naphtha	Light naphtha		
Olefins in gas, per cent by volume:																		
Ethylene	1.8	1.6	2.6	2.4	1.8	2.2	1.5	1.4	1.2	1.5	1.8	1.7	1.8	1.6	0.2	2.1	1.6	1.1
Propylene and butylene	14.3	10.2	14.8	13.2	14.1	8.4	8.6	8.0	7.6	7.7	6.6	12.7	9.0	8.8	6.8	12.4	10.1	9.5
Gas prod., cu. ft./bbl. charge:																		
Total gas	381	545	206	380	640	1430	342	666	695	350	509	523	730	1030	772	447	597	906
Ethylene	6.9	8.7	5.5	9.3	11.8	32.2	5.2	9.5	9.8	5.4	9.4	8.9	13.5	16.9	1.6	9.6	9.8	10.1
Propylene and butylene	54.5	55.5	30.5	56.1	90.2	120.0	29.4	53.2	53.0	27.0	33.6	66.4	65.6	90.7	52.5	55.5	60.4	86.0
Polymer gasoline yields:																		
Gals./1,000 cu. ft. total gas*	3.4	2.4	3.5	3.1	3.3	2.0	2.0	1.9	1.8	1.8	1.6	3.0	2.1	2.1	1.6	2.9	2.4	2.2
Volume per cent of charge*	3.1	3.1	1.7	2.8	5.0	6.7	1.6	3.0	3.0	1.5	1.9	3.7	3.7	5.1	2.9	3.1	3.4	4.8
Reformed gasoline:																		
Volume per cent of charge	82.4	75.2	92.6	88.7	76.9	48.9	91.2	78.8	69.2	75.6	72.4	79.4	70.9	57.6	69.9	82.0	76.1	66.8
Octane No.	51	56	64	68	72	78	71	76	77	71	74	68	71	76	76	68	72	75
Total polymer and reformed gasoline:																		
Volume per cent of charge	85.5	78.3	94.3	91.5	81.0	55.6	92.8	81.8	72.2	77.1	74.3	83.1	74.6	62.7	72.8	85.1	79.5	71.6
Octane No.*	53	58	65	69	73	79	72	77	77	72	74	69	72	77	77	69	73	76
Gain in yield with polymer gasoline:																		
Vol. per cent of reformed gasoline	3.8	4.1	1.8	3.2	6.6	13.7	1.8	3.8	4.3	2.0	2.6	4.7	5.2	8.8	4.1	3.8	4.5	7.2
Gain in Octane No. with reformed gasoline	2	2	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1

*These values estimated from pilot plant and commercial plant polymerization data.

TABLE 15—COMMERCIAL REFORMING RESULTS

Type of operation—	Gasoline reforming						Prefractionation	Reforming	Reforming + prefractionation	Reforming
Charging stock—							East-West Texas blend			Naranjos (Mex.)
Type:	East-West Texas blend									
Source:	Straightrun gasoline						Straightrun gasoline	Naphtha	Straightrun gasoline	straightrun gasoline
Gravity, °A.P.I.	58.1			58.1			60.4	51.0	60.4	62.2
Sulfur, per cent	0.18			0.18			....	0.14	....	....
Octane No. A.S.T.M. motor method	56			53			52 to 53	44	52 to 53	38
100 cc. distillation:										
I.B.P., °F.	114			114			100	249	100	104
10 per cent	175			172			162	268	162	168
50 per cent	270			265			260	303	260	273
90 per cent	366			360			358	368	358	....
Endpoint, °F.	399			403			396	401	396	410
Operating conditions—										
Pressures, pounds per square inch:										
Charging pump discharge	1227	1195	1180	1190	1195	1255	....	....	980	980	1300
Furnace outlet	750	775	763	750	765	770	....	....	750	750	710
Receiver	103	108	122	122	123	124	....	....	133	133	64
Temperatures, °F.:										
Entering soaking section	972	971	1005	1000	1009	1017	....	....	935	935	1020
Furnace outlet	1005	1021	1025	1024	1023	1024	....	....	1014	1014	....
Charging rate, bbl./day	9077	9317	9027	9054	8152	6792	....	....	11342	11342	3836
Cracking results—										
Gasoline:							Light Gasoline	Naphtha		
Yield, per cent by volume of charge	81.5	79.9	72.4	75.6	73.1	70.2	33.7	66.3	74.9	83.9	79.6
Gravity, °A.P.I.	58.2	58.1	58.7	59.5	58.6	58.4	73.6	51.0	....	61.9	63.3
Sulfur, per cent	....	....	....	....	....	....	0.03	0.14	....	0.05	....
Vapor pressure, Reid, pounds per square inch	8.6	9.8	11.8	12.0	11.9	12.1	13.3	....	....	8.8	9.0
Octane No. A.S.T.M. motor method	71	72	75	74	76	76	68	44	75	72	70
100 cc. A.S.T.M. distillation:										
I.B.P., °F.	106	....	....	....	....	....	83	249	....	92	90
10 per cent	....	....	....	....	....	....	122	268	....	138	124
20 per cent	....	....	....	....	....	....	139	....	....	160	....
50 per cent	....	....	....	....	....	....	175	303	....	214	230
90 per cent	....	....	....	....	....	....	220	368	....	332	....
Endpoint, °F.	386	390	394	391	393	389	255	401	....	381	410
Residuum stripper distillate:										
Yield, per cent by volume of charge	....	....	....	....	....	....	....	....	1.0	....	....
Gravity, °A.P.I.	....	....	....	....	....	....	....	....	31.3	....	....
Residuum:										
Yield, per cent by volume of charge	2.0	2.2	3.5	4.0	3.9	4.1	....	....	2.4	1.0	1.3
Gravity, °A.P.I.	23.2	17.0	10.2	13.7	9.7	12.7	....	....	10.2	10.2	15.7
Liquid volume loss:											
Per cent by volume of charge	16.5	17.9	24.1	20.4	23.0	25.6	....	....	21.7	14.2	19.1
Gas, cu. ft./bbl. of charge	419	....	....	....	....	....	....	....	....	....	....

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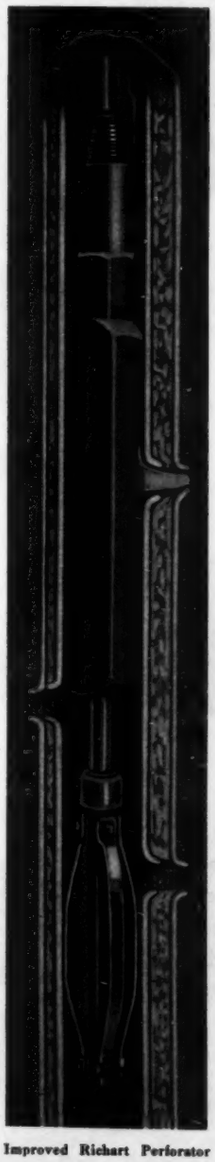

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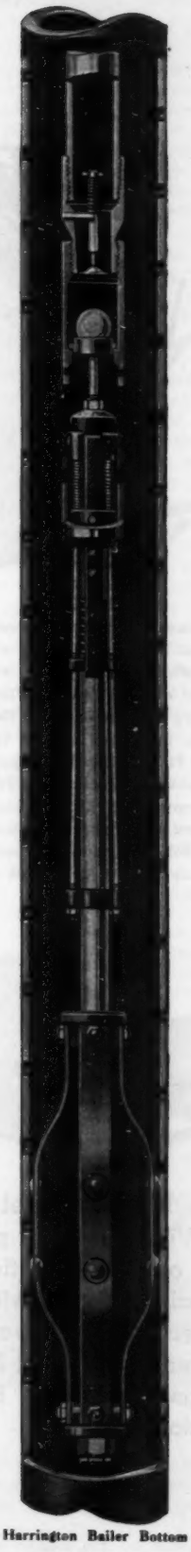

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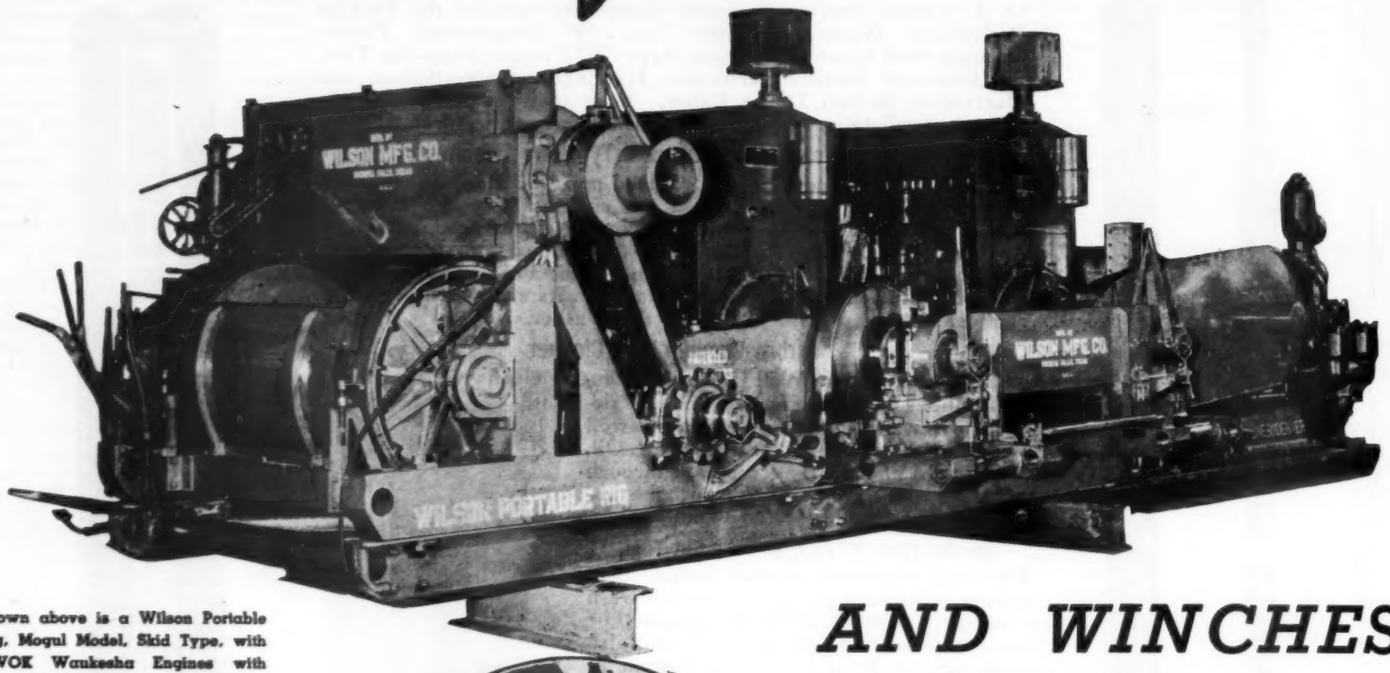

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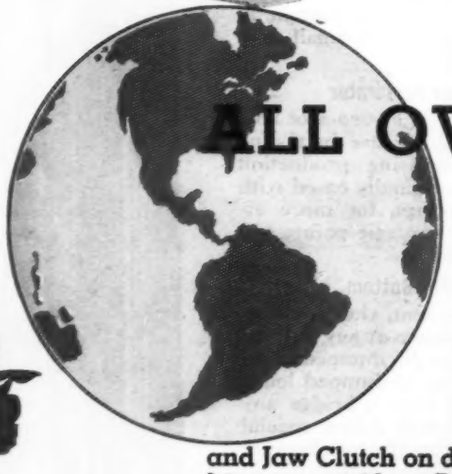

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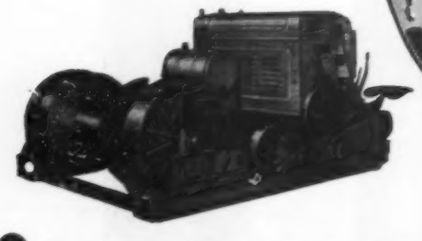

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Installation and Operating Problems in Venezuelan Compressor Stations

The Lago Petroleum Co.'s operations in Venezuela continue to offer many interesting problems, among which is the installation and maintenance of gas compressor stations which has called for developing new equipment and structures to meet the existing conditions. Special designs for the machinery, foundations and buildings have been required because the stations are located in the water of Lake Maracaibo a mile or so from shore.

The leases being developed by Lago lie along the eastern shore line of Lake Maracaibo, starting one-half mile from the water's edge and extend into the lake several miles at some places. The general trend of production runs north and south for about 25 miles, and while all of the area has not been developed, there are several producing fields where the wells are in water from 5 to 50 feet deep.

Once a new location is made in the lake area, the general procedure is to drive test piles from a floating pile driver barge to determine the number of piles which will be necessary for the foundation. After these piles are driven, they are tied together with a heavy steel sub-base, which supports the derrick and drilling equipment and provides room for pumping or cleanout units, which are used later.

Drilling Barge Used

The well is completed with a movable drilling barge, on which are mounted the boilers, mud-pumps, pipe racks and mud pits, etc., while the drilling engine and drawworks set on the derrick floor. After the well is drilled, the barge, together with the drilling engine, drawworks and rotary table, is moved away, leaving the foundation and derrick for future production purposes. When the well is completed as a producer, a lead line is laid to the nearest flow station, which also must be erected on a pile-supported platform. The laying of these lines is quite a difficult job, especially in rough weather, but Lago has been successful in developing a pipe-laying barge which allows typing together and easing into the water long sections of pipe which have previously been welded on shore. The oil collected at the flow stations from several wells is pumped, periodically, through under-the-water lines to the main tank farms on shore, from where it is loaded into lake tankers which tie up at the docks.

The next problem in connection with a new well is to erect a gas trap at the nearby flow station and lay a gas line to the nearest compressor station, as it has been the policy of Lago to collect all available gas from the producing wells. When the gasoline content justifies such expense, the gasoline is extracted before the gas is used for fuel, gas lift, repressuring or other purposes. This general gas conservation policy allows a concentration of the gas-handling facilities at central points, which holds down the investment and lowers the operating expense.

Typical Installation

A typical gas plant installation is shown in Figure 1, and includes the compressor station on the left, a low-pressure gasoline absorption plant with stabilizing tower in the center, and the boiler station, which supplies steam to the gasoline plant. All of this equipment is erected on concrete pile supported platforms some 10 feet above the water and separated to prevent any heavy fire losses. The three units are connected with walkways which carry all interconnecting pipe lines, which allows the operating crews to move around without resorting to boats. The type of construction used is shown in Figure 2 and consists of 16-inch square concrete piles driven into the bed of the lake, with concrete capping beams, over which is laid a reinforced concrete floor. It is also necessary to use batter piles as indicated in the picture, as the tides and effect of winds on the surface of the lake cause a continual lateral pressure on the foundation. It is important to provide a large safety factor as, during storms, these structures are subjected to a tremendous battering from the waves. Figure 2 also shows the usual gas scrubbers on the incoming gas lines, and a substation which is needed to supply power at proper voltage for the motor-driven compressors. The power for these stations is secured from a central steam turbine-generating plant which also produces electric power for all uses throughout the field.

Figure 3 shows the gasoline absorption plant in between the compressor station and the boiler house. The type of foundation here is almost identical with that at the compressor station, but includes some extra batter piles which are heavily capped to provide extra strength to support the absorption and stabilizing towers against wave and wind action.

The boiler house of this three-unit group is shown in Figure 4, and does not call for anything special in the way of construction, except that the foundation is built on concrete piles, and the building must withstand heavy storms.

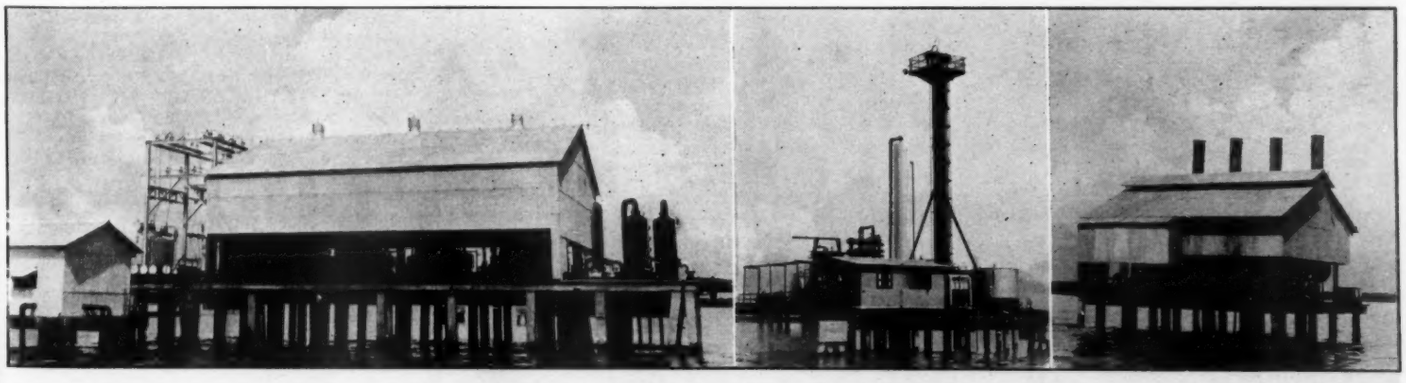
The flow of gas through the combined gas compressor station and gasoline plant is interesting in that full provision has been made for installing additional units and/or changing the sizes of the compressor cylinders. The gas enters the plant at zero pounds pressure and is carried through the main intake header to the top of the low-stage cylinders on the No. 1 unit. This gas is discharged from the bottom of the first unit at 50 pounds and passes through water-sprayed cooling coils at the end of the plant before it enters the absorption towers at the nearby gas plant. After the gasoline has been extracted through oil absorption, the residue gas returns to the compressor station through a scrubber, where any excess mineral seal oil is removed, and then flows through the intake header into the top of the second-stage cylinders. The gas is discharged from the bottom of the second-stage cylinders under 300 pounds pressure and passes through cooling coils and a small accumulator before entering the top of the third-stage cylinders. It is here compressed to 1,000 pounds or higher and is carried to the input wells through welded lines for repressuring purposes.

The three units in the gas compressor station are all of the same size, 600 horsepower, but the cylinders are so proportioned that all three machines have about the same load. The piping is arranged to allow a makeup of 50-pound gas from field traps to offset the shrinkage through the gas plant, and some of the gas can be removed at 300 pounds for lift purposes. Having all the intake headers on one side of the platform with discharges on the other has worked out very satisfactorily in that it allows a change in the duty of the different cylinders without interfering with the functions of the remaining ones. The intake headers and compressor connections have been installed with a free use of bends and welded headers, using seamless steel pipe, steel valves and flanges, in an effort to prevent gas leaks and possible fires.

Special Design

The most important development in connection with these stations was the special design of compressors, which was adopted because of its freedom from vibration. The need of such a machine is very evident after looking at the pile-supported foundations over the water, which must withstand the effects of wind and water, and the tendency to settle. This might occur at any time as the piles are driven into the soft lake bottom, where it is almost impossible to reach hard formations. The tendency of the piles to settle is in most cases increased by vibration, so every effort was put forth to obtain a machine running as smoothly as possible.

The actual unit chosen can be described as a balanced, opposed-type, two-cylinder, motor-driven compressor. The unit has a double-throw crankshaft with crankpins at 180 degrees, so the reciprocating parts on one end of the machine are opposed to and neutralized by similar parts on the other end. The two opposed pistons move in and



Compressor plant, absorption plant, and boiler station

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out together, and the weight of the crossheads, piston rods and pistons can be proportioned even with different size cylinders, to keep them in proper balance. This simple scheme of using a 180-degree crankshaft has worked out very satisfactorily with twin cylinders, although it requires some regulation of intake and discharge pressures to keep the load even on both ends when using different size cylinders. The compressor itself is mounted on a structural steel subbase which also supports the cylinders and electric motor. This makes it practical to install the units on an ordinary floor without any foundation block or special concrete reinforcement. It is even possible to run the machines under full load without fastening the steel subbase to the floor, but usually the units are grouted in and held in position with light bolts through the floor. The freedom from vibration, the elimination of heavy foundation and the compactness of the balanced opposed compressor, developed by the Lago, make it a very successful unit for use on pile-supported platforms over the water where space is limited. There are several other things in connection with the balanced opposed motor-driven compressors used by the Lago which are in common use, such as the adjustable clearance pockets and removable liners. These allow variation in intake pressures and changes in cylinder sizes without underloading or overloading the machines.

Two-Size Compressors

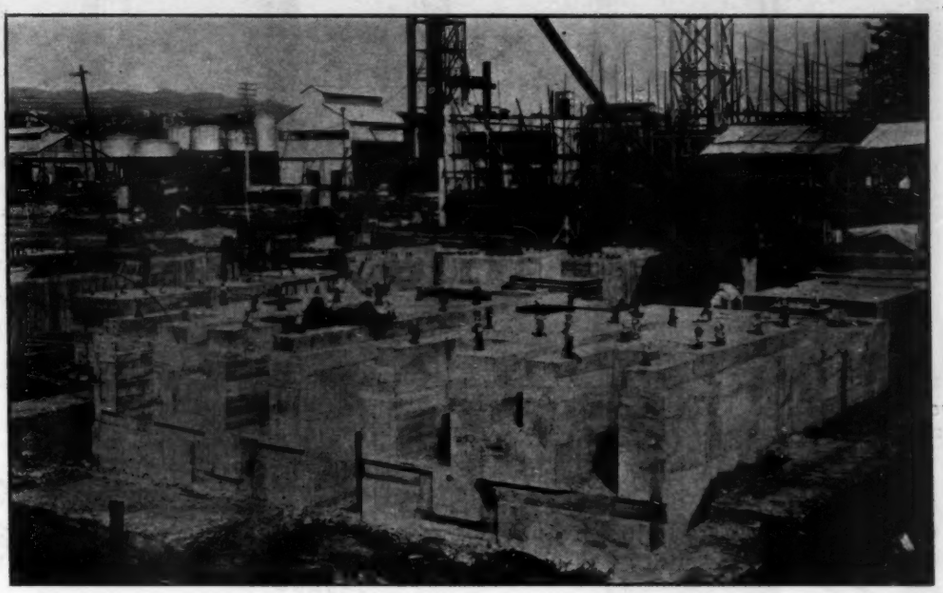
The compressors used at Lake Maracaibo are of two sizes, 300 and 600 horsepower, and while the intake and discharge pressures actually determine the deliveries, the small machine usually handles 3,000,000 feet per day, and the larger one 6,000,000 feet per day. Both size units are driven with synchronous motors, and it was necessary to enclose the collector rings and provide blowers to keep the contacts surrounded with fresh air at all times, to avoid igniting gas which might at times be present. The starting and control apparatus for the motors is of the usual design, but in the Lago stations all of the switches, instruments and electrical apparatus for each unit are housed in a steel cabinet, which is set on the floor at one end of the station. This is a very satisfactory installation in that it eliminates considerable connection work in the field and insures adequate control of the units under ordinary operating conditions.

Considerable care was necessary in connection with these stations to eliminate explosions from gas, as it was difficult to install synchronous motors with the necessary starting and control apparatus free from open electrical contacts. It was decided that a building with revolving ventilators along the ridge and open around the bottom would allow sufficient fresh air to circulate to diminish the chances of igniting gas which might come from breaks or leaks. This scheme is possible in the tropics, as it is unnecessary to have a closed building, because it is warm night and day throughout the year. However, it did call for some quick-acting rolling doors which can be run down in case a storm comes up from one side or the other. The building used for the compressor stations is the usual steel frame structure with corrugated asbestos sheets for the sides and roof, which not only resist the weather, but provide some insulation from the sun, and is strictly fireproof.

The operation of a compressor station at Lake Maracaibo is in itself a continual problem, mainly in view of the severe storms which not only send waves completely over the structure, but also damage the transmission lines supplying power to them. It was also hard at first to obtain experienced compressor station operators, but it is the policy of the company to use native Venezuelans, and after a little training they handle this type of machinery without difficulty. The operating crews and all supplies must be transported from the camps on shore to the stations in boats, which is simple enough in nice weather, but next to impossible in bad storms.

Even against such obstacles, Lago has installed and is operating four of these motor-driven compressor stations with a combined rating of 9,000 horsepower, and the results obtained through gasoline extraction, gas lift and repressuring justify the effort and expense involved.

Polymerization Unit for Imperial Japanese Navy



Unit under construction at Kudamatsu, Japan. Equipment furnished by Alco Products Co.

◆ ◆ ◆ ◆

Variations in Measurements and Conversion Factors

Due to the variations in measurements in oil-producing and consuming countries and due to the differences in specific gravity of oils, statisticians often become confused in correlating data covering supply and demand. In International Petroleum Trade, issued monthly by the U. S. Bureau of Mines, it is customary to convert figures of crude petroleum, imports and exports from units of weight to units of volume at a uniform rate of 7 bbls. to the metric ton or from other units of weight at a factor based on this ratio. The reasons for this practice are chiefly those of convenience and time saving.

In the table of world petroleum production published annually in the statistical appendix to the Minerals Yearbook, the average specific gravity of the crude oil for each field in a given country is obtained and the production of each field is converted from units of weight to barrels at a ratio based on these specific gravities. The result is weighted average conversion factor for each country which varies slightly from year to year as the preponderance of production shifts from one field to another.

The following conversion factors from metric tons to barrels of 42 American gallons are calculated from the world petroleum table in 1934, to be published in the forthcoming statistical appendix to the Minerals Yearbook: United States, 7.39; Union of Socialist Soviet Republics, 7.29; Sakhalin, 6.75; Venezuela, 6.77; Rumania, 7.32; Iran (Persia), 7.55; N. India, 7.75; Mexico, 6.74; Columbia, 7.17; Peru, 7.54; Argentina, 7.02; Trinidad, 7.11; British India, 7.24; Iraq, 7.46; British Borneo, 7.63; Poland, 7.40; Germany, 6.94; Japan and Taian, 7.03; Ecuador, 7.06; Egypt, 7.00; Canada, 7.92; France, 7.14; Bahrein Island, 7.31; Czechoslovakia, 6.85; Bolivia, 7.95; Italy, 7.55; other countries, 6.86; world, 7.30.

In the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce, it is often necessary to convert refinery products to American barrels. The following conversion factors for converting liquid petroleum products from metric tons to American barrels are used: Crude oil, 7.00; gasoline, 8.50; kerosene, 7.75; lubricating oils, 7.00; fuel oil, 6.66; gas oil, 7.25; naphtha (except where used to designate crude), 8.50; gas and fuel oils, 6.96; turpentine substitute, 8.125; paraffin oil, 6.98; petrolatum oil, 7.36; solar oil, 7.29; road oil, 6.50; mineral oils, n.o.p. 7.00. Where the foreign measurement is not metric tons it is possible to arrive at a barrel figure by using 2,204.6 pounds to the metric ton. Where the product is imperial gallon the conversion factor used is 35 imperial gallons to the American barrel of 42 gallons. Where the product is shown in cubic meters the conversion factor is 6.29 bbls. to the cubic meter.

Advance in Standardization of Oil-Testing Methods

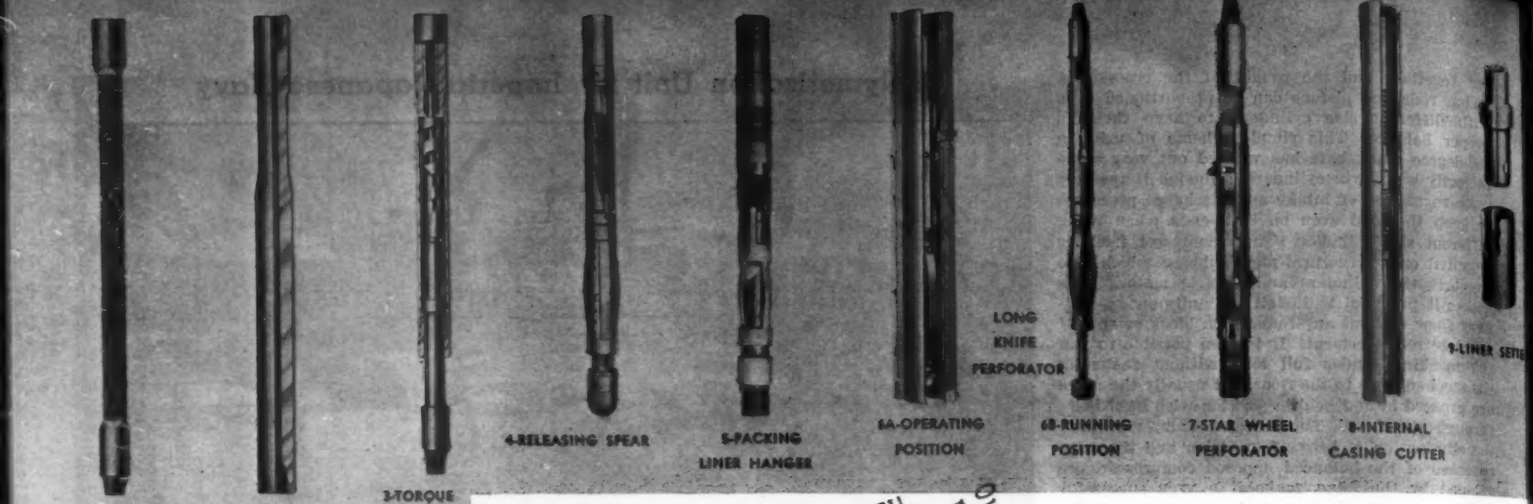
A notable advance in the standardization of the methods of testing petroleum and its products has been made by the Institution of Petroleum Technologists, London, in publishing the third edition of its well-known handbook.*

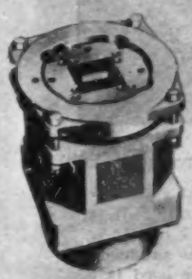
The ever-increasing use of petroleum products in industry and the considerable progress which has been made in the refining of crude petroleum to meet these demands necessitates the preparation of new test methods designed to indicate the suitability of an oil to perform its particular duty. Since the publication of the second edition of this book in 1929 it has been necessary to consider many tests of this character and those which have been found of practical value are included in the new edition. It was also found that some of the methods previously standardized required revision in certain details of technique and design.

In some cases it was considered that a particular method had not reached the stage when it could be laid down as a standard. Tests in this catagory are therefore included as tentative and it is hoped that their use will result in information being obtained which will enable them to be amended if necessary and adopted as standards in a later edition.

Many of the tests laid down by the Institution of Petroleum Technologists are in accordance with those standardized by the American Society for Testing Materials, although in a few cases it has been found necessary to introduce slight modifications in order to meet local requirements. There is thus some measure of coordination in existence between the U.S.A. and Great Britain and it is to be hoped that this spirit of cooperation will be extended until there is a world-wide uniformity in the methods used for the testing of petroleum and its products. Steps in this direction were taken in 1933 at the World Petroleum Congress when it was resolved that proposals regarding international standardization should be made through the national standardizing bodies grouped under Technical Committee 28 of the International Federation of Standardizing Associations (I.S.A.).

*"Standard Methods for Testing Petroleum and Its Products," 3rd edition, 1935. 7s. 6d.




10-ROLLER KELLY BUSHING

11-AUTOLOCK PACKING ASSEMBLY

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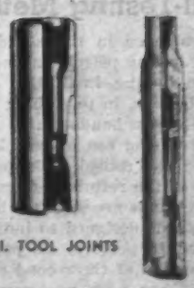
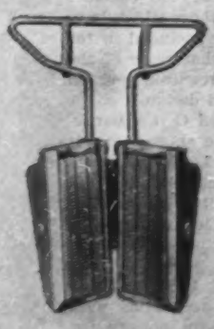

15-A.P.I. TOOL JOINTS

13-RELEASING SOCKET


14-SELF-ALIGNING ROTARY SLIPS

16-DRISCOLL OVERSHOT

17-AUTOLOCK SAFETY JOINT

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Descriptions of many of the Tools Shown on These Pages are Translated on our Page in the Foreign Language Section of This Issue.

Coking Petroleum Residues Results in Larger Recovery of Antiknock Fuel

By D. GLYNN JONES, M.Sc., A.I.C.*

The demands put upon the petroleum industry for the supply of its products are continually changing. In some cases improvements in the characteristics of the products are required, occasionally it is necessary to supply products which have not previously been commercially produced from petroleum, while frequently the demand for certain products falls off considerably and others, previously regarded as of little value, rise to a position of importance.

In support of this may be cited the continued improvement in the quality of lubricating oils and motor-spirit; the development of a flourishing industry for the manufacture of chemical intermediates from cracking gases, etc. (1, 2); the present supreme importance of motor-spirit; the gradual rise in popularity of the diesel engine, and the consequent need for its own specific fuel. Concurrent with the development of the diesel engine comes the gradual displacement of the steam-powered engine, and consequently a diminishing market for heavy fuel oils of the residual type. In many cases, however, refinery operations have been so planned that the end product is a residual fuel oil. Coking provides a means of disposing of this material, at the same time producing motor-spirit, diesel oil, gas oil and a saleable coke.

A summary of the methods of coking petroleum products has been given in a previous paper (3). From a perusal of the literature it appears that the most popular type of coking installation at present is the Knowles oven. Details of this plant have appeared on many occasions, notably in papers by Staley (4), and Foster (5), while a paper by Fisher (6) gives an account of an installation in England for (a) the direct coking of coals, (b) the coking of petroleum oil residues, (c) for the coking of coal-tar and pitch and (d) for coking coal-oil mixtures.

The Knowles process is a marked improvement on previous coking methods in that the length of time that a particular oven is off stream has been reduced considerably by virtue of the efficient coke removing apparatus and oven doors which can be quickly closed and rendered vapor-tight.

A plant, however, which works continuously offers certain additional advantages such as heat loss due to the cooling off of the ovens during coke discharging being minimized, and the operation of the plant rendered practically automatic, a constant amount of feed entering the plant, and a constant flow of products being obtained, leading to improved fractionation.

A coking plant of this type has been invented by A. Knudsen (7) (patent rights registered in the United States and other countries), and is now in the initial operating stages. The details of its development have been described (Jones, loc. cit.), but the construction of the full-scale plant differs slightly from that of the experimental plant, the whole process including the coke cleaning devices, working automatically.

The plant consists essentially of an endless chain of metal containers propelled by two driving wheels, one at either end of the plant. The containers move through an externally heated coking chamber constructed of heat-resisting alloy steel. The buckets enter and leave the chamber through throats of reduced area which virtually seal off the chamber from the rest of the plant. The interior is kept under a very slight vacuum and the vapors pass up through vapor mains to the fractionating tower. After passing through the chamber the containers return in an inverted position to the filling end of the plant, being cleaned of their coke by an automatically operating device immediately prior to a further injection of material for coking. The whole plant is enclosed so as to conserve heat as much as possible and a small amount of steam is opened to the two ends of the plant in order to preclude the leakage of air through the throats under the influence of the slight vacuum which is maintained in the chamber.

The flow diagram of the coking process is attached as Figure 1. Topped crude is processed in Kellogg viscosity-breaking units to yield gas-oil and a heavy residue of 1,500 pounds viscosity Saybolt Furol at 50° C., together with a small amount of petrol (8). The high viscosity residue then flows directly to a vacuum tower where some 40 per cent of heavy gas-oil is taken overhead, leaving as bottoms an asphalt of softening point (Ring and Ball) of about 60° C. This material is pumped to a balance tank maintained at a temperature of about 360° C., whence it is injected continuously to the recipients of the coking plant. The vapors from the coking plant are fractionated in a bubble tower to yield a raw petrol, a medium gas-oil and a residue which is recycled to the coking plant. Coke is removed automatically from the containers and travels to storage by a system of belt conveyors and elevators.

Preliminary results have indicated that the yield of products to be expected are:

	Per cent
Raw motor-spirit	5 to 10
Total gas-oil	45 to 55
Coke	20 to 30
Loss as gas, etc.	10 to 15

A typical set of analyses of the products follows:

RAW MOTOR-SPIRIT

Specific gravity at 15° C.	0.795
A.S.T.M. Distillation:	
Initial boiling point, °C.	56
Endpoint, °C.	210
Color	yellow
Doctor test	(*)
Gum test (cu. dish)	(†)
Absorption in conc. H_2SO_4	(‡)

*Sweet after removal of H_2S.
†About 1,000 mgms./100 ml.
‡About 50 per cent.

It should be noted that the light ends of the motor-spirit are present in the gas produced, up to 250 lts. of gasoline per 1,000 M³ of gas actually being found.

LIGHT GAS-OIL

Specific gravity at 15° C.	0.890
A.S.T.M. Distillation:	
Initial boiling point, °C.	207
90 per cent, °C.	360
98 per cent, °C.	385
Flashpoint (Pensky-Marten), °F.	190
Vis. Saybolt Universal/38° C., sec.	42
Hard asphalt	nil
Pourpoint, °C. (below)	12

RESIDUE

A dark oil of vis. S.U. at 50° C. of sec.	310

COKE

(Analysis on dry basis)

Volatile matter, per cent	6.97
Fixed carbon, per cent	91.78
Ash, per cent	1.25
Sulfur, per cent	0.26
Calorific value in B.t.u.'s.	15,229

The actual content of volatiles is one easily controlled in a plant of the type described since either the temperature inside the coking chamber can be varied or the length of time during which the material is exposed to heat can be alterated merely by changing the speed of the containers.

It has been found that the quality of the raw petrol can be considerably improved simply by a vapor phase treatment through Gray towers. Both the raw petrol and gas-oil are of the type normally associated with coking processes, while furthermore it is claimed that an improved type of coke can be produced by means of the plant described.

A further advantage is that the continuous operation of the plant reduces the capital expenditure involved in that the plant is always working to full coking capacity and there are no idle periods for cleaning out.

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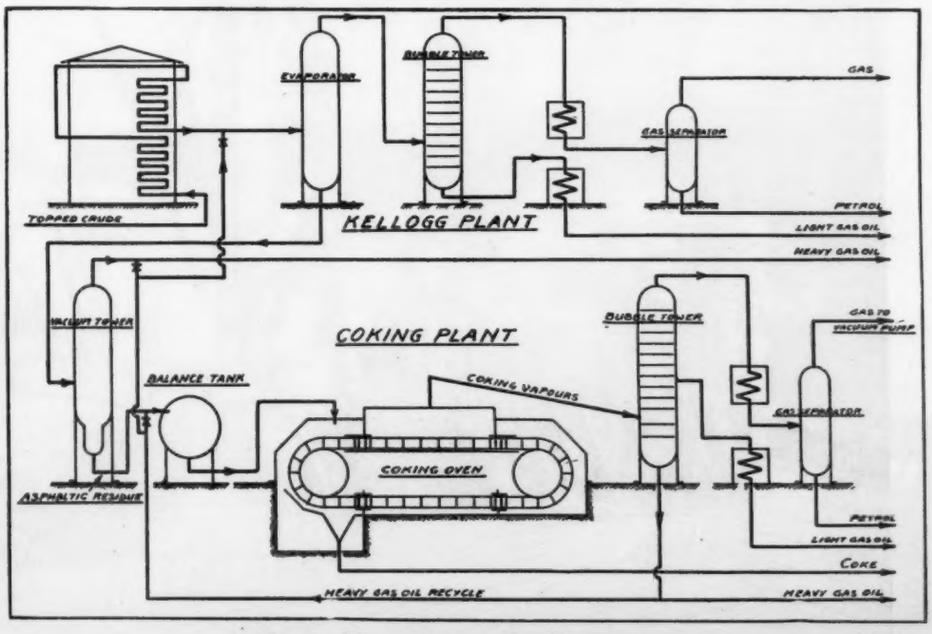


Fig. 1—Flow diagram of coking process

*Cia. Ferrocarrilera de Petroleo, Comodoro Rivadavia, Argentina

DIRECT-DRIVEN

"OILWELL" Nos. 726 and 727 DRILLING UNITS

These new units consist of the 26" Model 34 Make-and-Break Rotary and the 27½" Model 35 Straight Rotary, respectively, direct-driven through gear box by an "OILWELL" No. 7 (7¾" x 7") Vertical Twin Cylinder Piston Valve Steam Engine with variable cut-off. Rotary, engine, and gear box are mounted integral on skids.

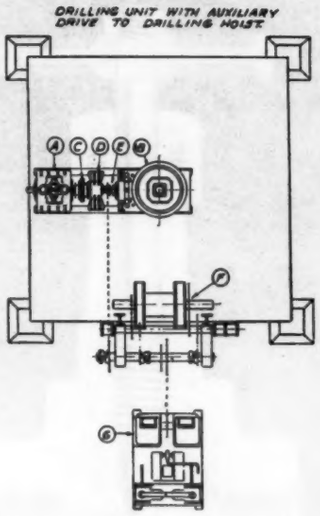
★ **Use 10%-15% Less Steam and Fuel** ★ **Greatly Reduce Maintenance**

★ **Eliminate Chain-Sprocket Drive** ★ **Use Expansive Force of Steam**

"OILWELL" No. 7 Steam Engine is also used to Direct-Drive Power Slush Pumps

ROTARY UNIT

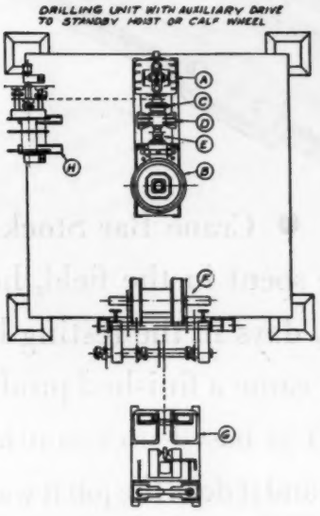
by "Oilwell"



TYPICAL FLOOR PLANS

Illustrating the Hook-up of the Direct-Driven Rotary Unit

- A. *No. 7 Steam Engine*
- B. *Rotary*
- C. *Flexible Coupling*
- D. *Gear Box*
- E. *Clutch Coupling*
- F. *Drilling Hoist*
- G. *Hoisting Engine*
- H. *Standby Hoist or Calf Wheel*



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The "OILWELL" Drilling Unit simplifies drilling the rat hole; makes spudding easier and more effective; provides an effective means of "drilling up," thus eliminating fishing jobs when "bridges" are formed above the bit; saves time in breaking out drill pipe—no clutches to throw nor is engine reversed.

The "OILWELL" Direct-Steam-Driven Unit is a distinct contribution to greater economy and greater efficiency in rotary drilling. For a complete description write for Bulletin No. 145.

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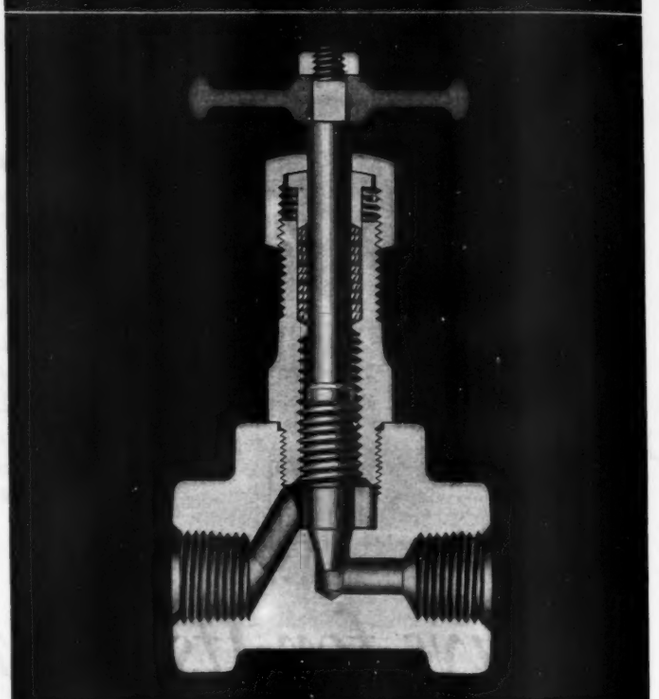

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CRANE VALVES, FITTINGS AND PIPE FABRICATION

Largest Single Outlet for Oil From Iraq Is at Gonfreville Refinery in France

The Compagnie Francaise de Raffinage, refining subsidiary of Compagnie Francaise des Petroles, is now operating the largest refinery in France located at Gonfreville on the Tancarville Canal near Le Havre. The refinery, which has facilities to manufacture practically a complete line of petroleum products, has a rated crude oil capacity of from 20,000 to 25,000 bbls. daily. A second refinery with a capacity of approximately 12,000 bbls. daily was placed in operation during the past year at Martigues near Marseilles. The parent company is one of four owners of the Iraq Petroleum Co., Ltd., which owns the Kirkuk development in Iraq and which also owns and operates the pipe line which delivers the crude to two terminals on the Mediterranean.

The Gonfreville refinery is said to be the largest single outlet for the new crude supply from Iraq this year. Certain changes in plant operation are being made to improve the operation with the Iraq crude oil. The following summary of the refinery's main operating features was furnished by engineers of the company:

The unloading of the cargoes of crude is taken care of by the Compagnie Industrielle Maritime, at a petroleum dock of special construction forming a part of the new outer port of Havre. The vessels discharge into relay tanks with a total capacity of 30,000 cubic meters, located in this outer port; from these the liquid reaches the refinery through two underground pipes of 250 and 200 mm. diameter, respectively, and 10,100 meters long.

The crude petroleum is moved from one point to another in the harbor by two centrifugal pumps coupled to electric motors of 185 horsepower, capable of operating either individually, delivering about 210 cubic meters an hour at a pressure of 14 kgs., or in series with twice that pressure. If necessary, these pumps may be combined in parallel, which arrangement makes possible an aggregate delivery of 350 cubic meters an hour.

Predistillation Operation

The predistilling unit now in operation at the refinery can handle about 20,000 bbls. a day. The predistilling operation also frees the crude of water and of hydrogen sulfide gas. Its flashpoint is raised to a point above 80° F. and it may be stored for as long a time as circumstances require without evaporation loss, and a reduction in fire hazard.

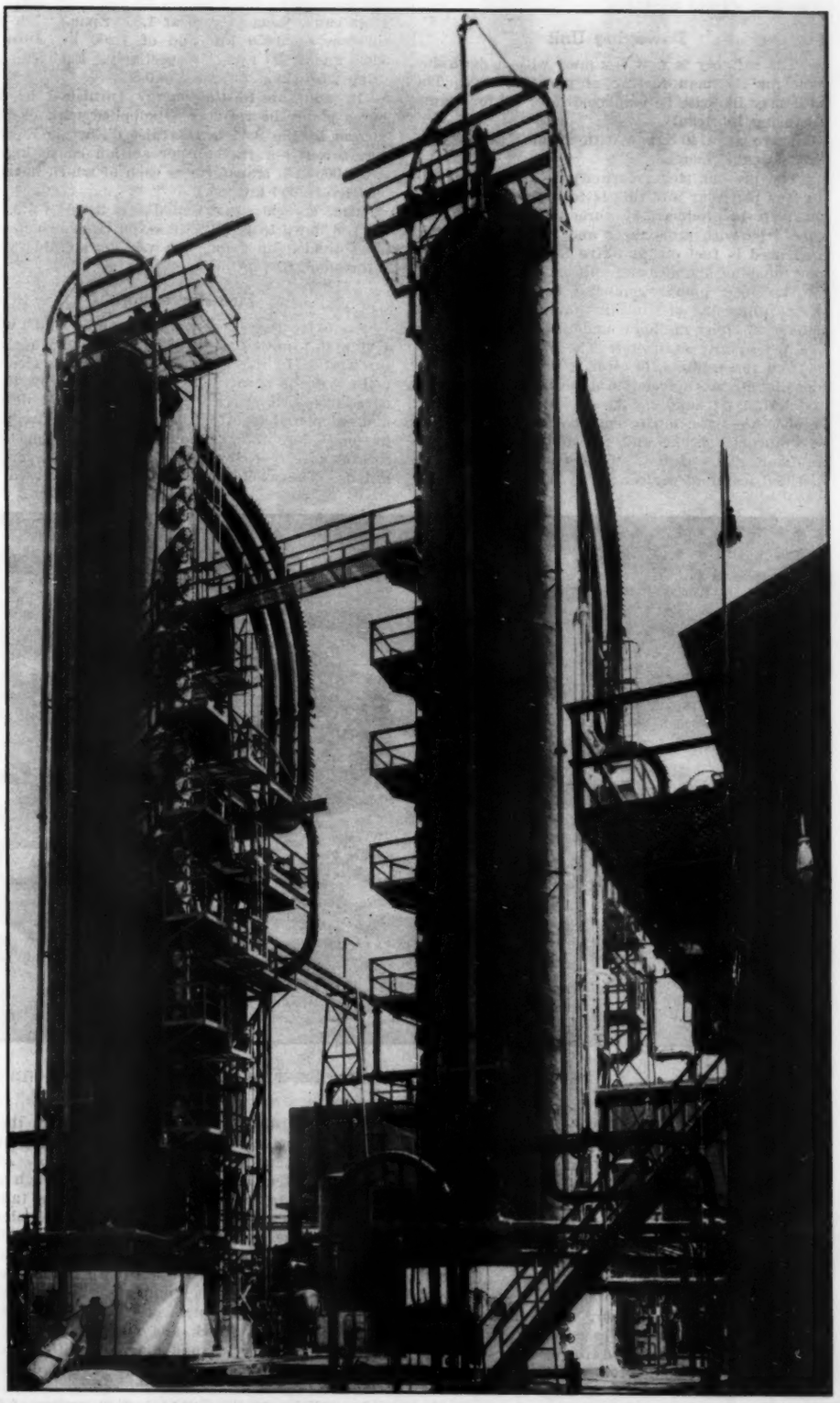
The stabilization process as applied to primary gasoline produces gases rich in butane and propane, which are readily liquefiable under low pressure and valuable as fuel products. It is planned to provide bottling and distributing facilities for these products.

Crude distillation as carried on is the conventional pipe still operation at atmospheric pressure. The following products are secured: Gasoline, solvent naphtha, kerosene, gas oil, wax distillate and fuel oil. The high pressure and high temperature includes both cracking of gas oil and reforming of naphtha. This enables the refinery to secure a large yield of high octane motor fuel.

Unrefined gasoline produced by the cracking method contains unstable unsaturated hydrocarbons which undergo polymerization with the lapse of time; this results in a brownish coloration and an impairment in quality. To overcome such effects, the gasoline is subjected to a treatment with sulfuric acid and soda, after which it is redistilled.

The unit consists of two bubble towers, one of which operates under atmospheric pressure, the other under a vacuum.

As stated above, the cracking gasoline is given an initial treatment with sulfuric acid. before the redistillation; this treatment is followed by a washing with water and then with caustic. These operations are continuous ones. The gasoline is first mixed with the reagent in a mixer,



Crude distillation unit at Gonfreville, France, refinery of Compagnie Francaise des Petroles

and then passed into a vertical tower wherein the two liquids separate by decantation.

After the redistillation, the cracked gasoline is in the same condition as the product of distillation. It is thereafter subjected to the plumbite of soda treatment for the removal of the final traces of sulfur compounds.

The installation for the plumbite refining is likewise continuous, and based upon the same principle as the acid outfit—a mixture with the reagent in a mixer, followed by separation of the two liquid strata by decantation. The present plant has four 4,200-bbl. units, two for the acid and caustic treatment and two for the plumbite treatment. The utilization of the continuous design of operation eliminates losses by evaporation.

The Edeleanu process is used in treating kerosene and solvent naphthas.

Dewaxing Unit

The refinery is now equipped with a dewaxing unit for the manufacture of paraffin wax. The unit may likewise be employed later on for manufacturing lubricants.

There are 140 tanks with a total capacity of 325,000 cubic meters.

The present steam capacity of the refinery is 40 tons per hour and this is to be increased to 60 tons. It is produced by three generators of the tube type with economizer and superheater. The fuel used is fuel oil, and five burners are fed by one pumping and heating unit for each generator.

The feed pumps comprise three electrically-driven units and one turbine pump unit; they can deliver 45 tons an hour under a pressure of 50 kgs. per square centimeter. The feed water, which is from the Oudalle, is given a preliminary treatment by a quadruple-action distilling station of the S.C.A.M. type handling 32 tons an hour; for the second stage the outfit may be increased to one of quintuple action, and the delivery to 42 tons an hour. This station supplies a degasified and distilled water of perfect purity, heated up to 95°.

The 1,250-kw. unit has a counterpressure turbine into which the steam is fed under a pressure of 35 kgs. to the square centimeter, and which expands it to 7 kg./cm².

The 7-kg. steam either from the draw-off on the 2,050-kw. turbines or from the expansion in the 1,250-kw. turbine is supplied to the steam system under moderate pressure and passes through the whole plant; in the event of the turbine equipment proving inadequate the complement would be furnished by two 35 to 7-kg. expanders. The low-pressure steam (1.5 kg.) is derived from the escapements of the various pumps in the refinery, and the complement is supplied by three 7 to 1.5-kg. expanders.

The alternators of the units produce a three-phase current of 50 cycles and 3,200 volts. They are coupled to the turbines by reducing gears so as to cause them to turn at 1,000 r.p.m., while the turbines of 2,050 kw. and of 1,250 kw. turn at 5,925 and 7,420 r.p.m., respectively. Each can develop 2,500 kva. at cos $\phi = 0.8$.

In addition to the energy furnished by the steam plant the refinery is supplied with electric current by the Societe Havraise d'Energie Electrique, through a transformer station consisting of two 1,500-kva. transformers each of which normally delivers 600 kw.

The current, distributed at 3,000 volts, is stepped down to 220/127 in seven transformer stations divided up among the various suitable sites throughout the refinery.

Fire Prevention

An extremely thorough study was made with a view to protect the whole of the refinery against fire risks. In the pump assemblages the electric motors are separated from the pumps by tight partitions. All electric work is of special design and calculated to offer the maximum of fire protection. More than 20 miles of foamite lines insure an effective coverage of all tanks and installations. The whole plant is likewise traversed by a system of tubes carrying brackish water; there are 9.5 kilometers of these, with 71 hydrants, and the water is under a pressure of 12 kgs. And lastly, a system of conduits running through all buildings contains a compressed inert gas taken from the tubes carrying the products of combustion from the steam and electric station; with this chilled and purified gas the pipe lines are evacuated of their contents, and with it the pump assemblages can also be inundated. Besides the various stationary equipment for fire fighting, there is a foamite truck and numerous hand extinguishers. Detection and alarm facilities make the placing in action of these protective devices a matter of seconds.

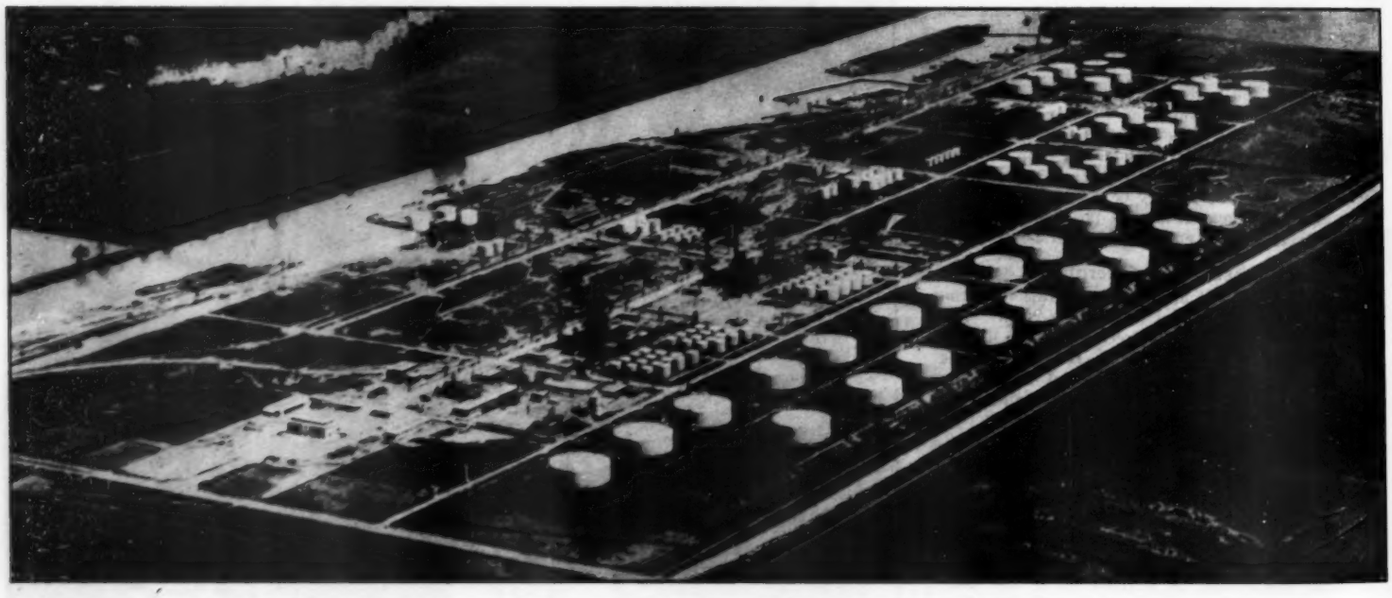
In addition to the fire-protection system of 9,500 meters length, spoken of above, there are three other networks of pipes—one for brackish water, one for soft water and one for drinking water. The brackish water is taken from the Tancarville Canal through a pump station equipped with two pumps of 1,560 cubic meters per hour delivery and one of 2,580 cubic meters, driven by 3,000-volt electric motors. They force the water into two reinforced-concrete tanks of 800 cubic meters each, which supply 1,700 meters of tubing.

The soft water is from the Oudalle River, which flows into the Estuary at a point about 1,500 meters from the center of the refinery. It is siphoned underneath the canal and into an underground tank 22 meters in diameter and 3 meters deep (capacity 1,000 cubic meters); thence it is pumped into a reinforced-concrete tank of 700 cubic meters capacity.

The laboratory is situated in the interior of the refinery and in close proximity to the refining operations. It is formed of two buildings measuring 37½x10½ meters, and is fitted up with whatever equipment is necessary for a complete surveillance of all the manufacturing activities. This, indeed, is the limit of its scope, for the C.F.R. maintains in the city of Paris a much more ambitious laboratory devoted to investigation and research.

Shipments can be effected in four ways: (a) By tank barge or tank ship: For this purpose four loading docks have been provided, equipped with structures to support the pipe lines; this installation makes it possible to load four lighters at once; there is also a double dock for the quick loading of a 4,000-ton coaster. Barriers have been set up, to isolate the lighter harbor from the canal, and gauging vats, for both white and black products, serve to measure the quantities moved. (b) By tank car: Four trains of 12 cars each can be loaded at one time, across two loading ramps connected to four parallel railways tracks; one of these ramps is for the white products, the other for the dark. (c) By tank truck: For this purpose two double loading points, with eight gaugers and eight uprights, are provided. The total quantities that can be loaded per hour are as follows: Gasoline, 175 tons; solvent, 25 tons; kerosene, 80 tons; gas oil, 200 tons, and fuel oil, 560 tons. (d) In the port of Havre ships of up to 10,000 tons can be loaded with bunker oils by means of a pipe line connected to the refinery.

The offices of the establishment, located at the entrance, are housed in one building 30 meters long by 10 meters wide and two stories in height; this structure is entirely separated from the others, with plenty of free space for the movement of employes and vehicles. Near by are the garage building and the refectory or mess hall, where the personnel permanently employed may come for their meals. The stoves serving this refectory is heated by butane gas.



General view of the Gonfreville, France, refinery of Compagnie Francaise des Petroles

The steam from the boilers supplies, according to the first-stage plans, three turbo-alternator units, two of 2,050 kw. and one of 1,250 kw.; a fourth unit, of 2,050 kw., is projected for the second stage. In the 2,050-kw. units the turbines have one condenser per surface and one intermediate steam outlet; the feed steam is under 35 kgs. to the square centimeter, at a temperature of 350°; the outgoing steam under 7 kgs. to the centimeter, at 230°. For the latter, the maximum taken is 13,000 kgs. an hour. The condenser surface is 150 square meters.

Brackish water is used for cooling the condenser; the water derived from the condensed steam is degasified and heated up to 95° in the distilling stations, after which it returns to the boiler.

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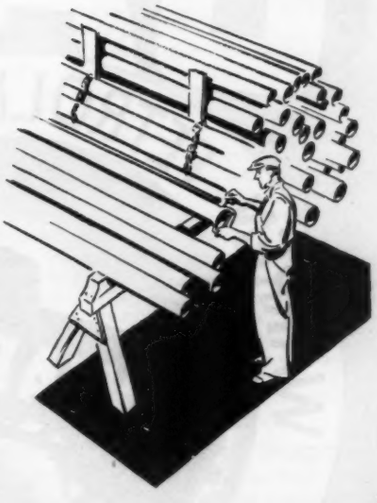

"SICROMO" is the latest Timken development in refinery tube steel. It was developed to provide high corrosion and oxidation resisting still, heat exchanger and condenser tubes at lower cost than tubes fabricated from 4-6% chromium alloys.

"SICROMO" Steel is second only to the more expensive high chrome alloys in corrosion and oxidation resistance, hence it has a very broad field of usefulness in refinery service.

Timken "Sicromo" Tubes are recommended for corrosion and oxidation conditions that are beyond the scope of Timken DM Tubes, but not sufficiently severe to necessitate the use of higher-priced tubes such as 4-6% chrome or 18-8.

In general elevated temperature characteristics such as creep strength, reserve strength and high temperature yield stress value, "Sicromo" Steel falls into the same classification as the 4-6% chrome steels and will serve just as dependably.

It will pay you to try "Sicromo" Tubes wherever the use of a high corrosion and oxidation resisting steel is indicated. Write for further information.

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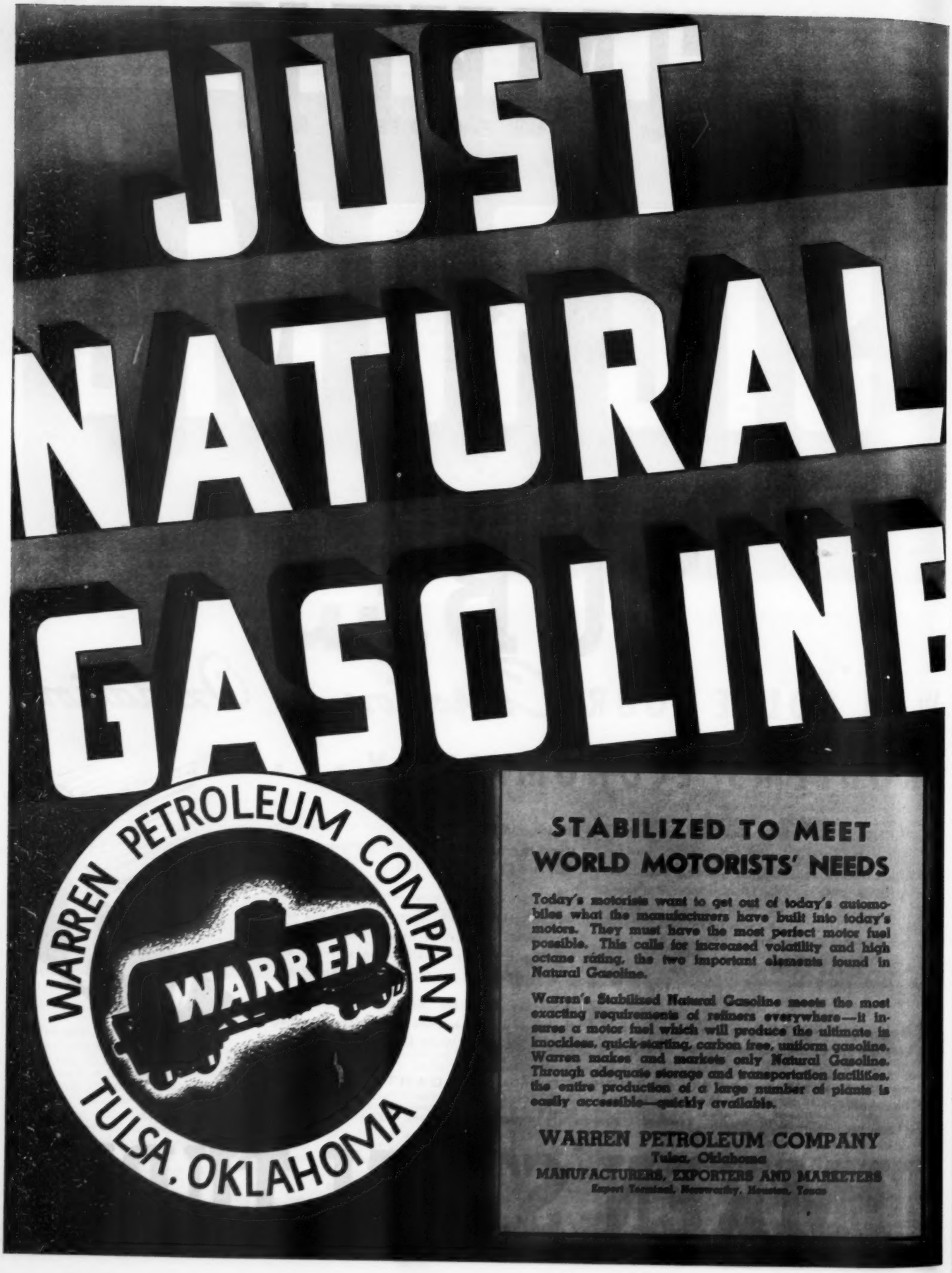

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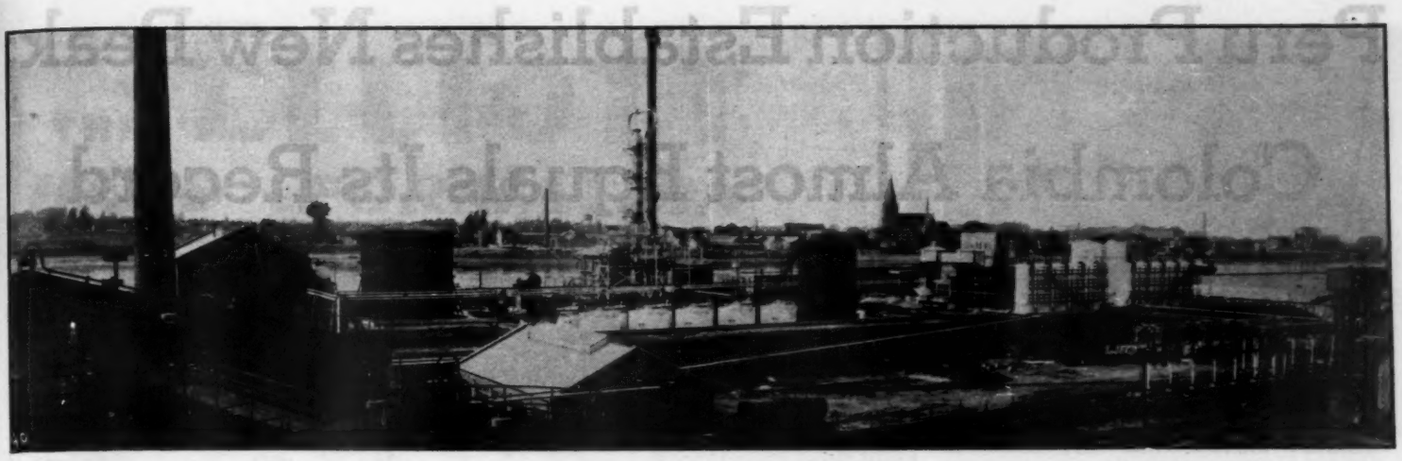


General view of Redeventza refinery taken from main storage tanks. Transfer pump house in left foreground; loading rack on right

New Belgian Refinery Able to Process Wide Variety in Grades of Crude

A new Belgian petroleum refinery was completed early this year and commenced operation during the latter part of August. The plant has been erected by a newly formed Belgian company associated with the Redeventza S. A. of Bucarest, which company possesses refineries and production in Rumania. The other shareholders are various industrialists widely spread throughout the continent.

The refinery has been built to take advantage of the protective tariffs which apply in Belgium, and at the same time to make certain products for export to the East Coast of England, and to Holland, Germany and Switzerland.

Close to Pier

The refinery has a capacity of 2,000 to 3,000 bbls. per day. It is situated close to the Petrol Pier at Antwerp and has been built under the supervision of Harold Moore of Queen Victoria Street, London.

The atmospheric distilling unit built by Borsig of Berlin under licence from Foster Wheeler, Ltd., London, has been designed by the latter company as a general utility unit capable of handling a variety of crude oils including Rumanian (paraffinic and asphaltic base), East Texas and Venezuelan crude oils.

The unit is designed to secure one overhead vapor product, three side streams, and one residue stream. When handling the charging stocks at present contemplated, these products will be: gasoline as overhead vapor product; white spirit, kerosene, and gas oil as side streams; and fuel oil as residue.

The charge of crude oil is pumped through heat exchangers in which it is preheated by the overhead vapor product and by the residue leaving the fractionating tower. It then passes directly to the tube still, in which it is heated to the necessary temperature to secure the required vaporization.

The gasoline, which is secured as an overhead vapor product, is condensed and cooled in a vapor heat exchanger and vapor condenser, and flows to a combined water separator and reflux supply tank, from which the condensed process steam is drained off; the necessary amount of condensate is pumped back as liquid reflux to the top of the tower, and the net yield of gasoline flows by gravity to storage.

White spirit, kerosene and gas oil are secured as liquid side streams from the fractionating tower and flow by gravity through coolers, to storage. Provision has also been made in the arrangement of the equipment to permit the addition, at a later date, of an external stripper, cooler and piping so that lubricating oil may be secured as a side stream, if desired.

The combination of Foster Wheeler patented Weir control valves and internal stripping sections for the side stream products, enables the specifications of these products to be very closely controlled, the endpoint of the side streams being controlled by the Weir control valves, and the initial boilingpoint or flashpoint controlled by the injection into the internal stripping sections of steam which has been superheated by a superheater located in the tube still.

The refinery is situated on the right bank of the Scheldt, on the inland side of Antwerp. The distance from the petroleum jetties is about 600 yards. The refinery is connected up to those jetties, which are public property, by five pipe lines, three of which are of 6-inch and two of 8-inch diameter.

In spite of the fact that the site was on very swampy ground, it has been possible to complete the refinery in a little over nine months. Some parts of the land have been filled in to raise the level by as much as 6 to 8 feet. This filling was carried out by pumping a sand water suspension on the land, and the result is a remarkably solid and even surface. The total storage capacity of the installation is slightly under 50,000 tons.

Pump House

The pump house has been designed on the exchange pit system as it was desired to build the installation in such a way that it would be capable of being employed as a storage. It is considered that the exchange pit system is less likely to allow danger of contamination or accidental mixing than the manifold system which is more commonly employed.

The tanks are of riveted construction and were manufactured locally by the firm Nobels Peelman & Ateliers de Construction de Willebroeck. Welded roofs are employed. The pipe line system has been welded throughout.

The steam installation has been carried out by Babcock & Wilcox and consists of two boilers, each having a heating surface of 2,300 square feet, and each being capable of generating approximately 18,000 pounds of steam per hour. The boilers operate at a pressure of 160 pounds per square inch, and are fitted with superheaters and economizers.

The treating plant is of comparatively simple design and in view of the varying nature of the work, is of the batch type, two soda washers and two acid washers being provided. The plant is capable of handling the benzine, white spirit and kerosene production of the refinery, agitation being effected by means of centrifugal pumps.

Steam Installation

In view of local conditions it has been found advisable to employ steam pumps throughout and this, together with the probability of future expansion, accounts for the large size of the steam installation. The jetty facilities provided by the town of Antwerp are capable of handling the largest ocean tankers. It is anticipated that the major portion of the production of the refinery will leave by road or rail and adequate facilities for the handling of this production have been provided. No private barge jetty has yet been constructed, but the pipe lines have been so arranged that jetty lines can be coupled up with the existing pipe work to supply a private barge jetty on the river front, at one side of the refinery. Pending the construction of the private barge jetty, it is, of course, possible to load barges at the main tanker jetties.

The electricity for the refinery is generated by means of a small turbo set, the exhaust steam of which is employed for process work. A petrol-paraffin set has been installed as a stand-by.

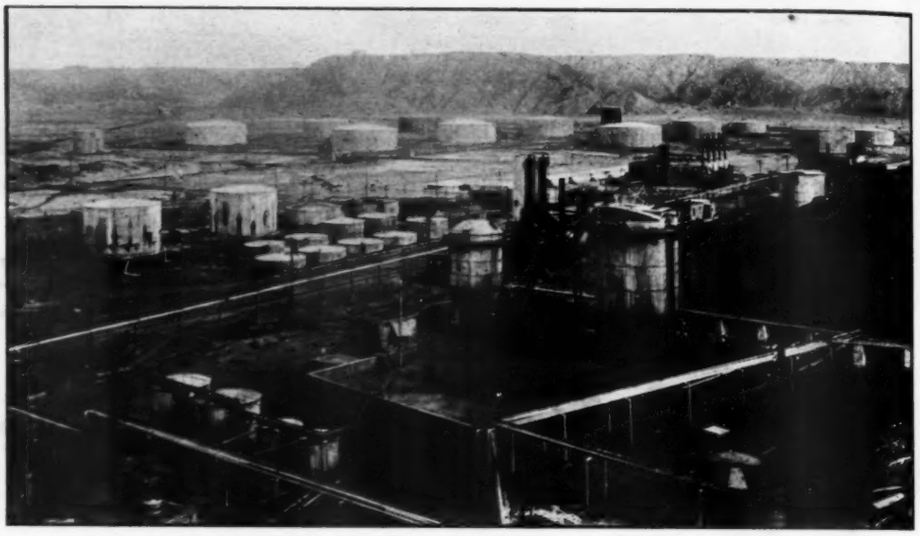
Interesting Employes' Magazine

Carter Oil Co. and Oklahoma Pipe Line Co. employes have published the first number of their employes magazine, a very interesting publication which thus far is without a name. Every member of the force of both companies is invited to suggest a name for the publication and doubtless the January number will appear with an appropriate title.

Carter Oil and Oklahoma Pipe Line officials have long felt the need of a medium through which employes of both companies could obtain adequate information concerning company activities, and the house magazine will enable the most remotely situated employe to keep informed of the developments and expansion of the two organizations.

Peru Production Establishes New Peak; Colombia Almost Equals Its Record

Without the aid of any important new discoveries, crude oil production in Peru will establish a new peak in 1935 and that of Colombia will be within 2,000,000 bbls. of its peak production. The increase reflects the application of the latest developments in field operating methods rather than the drilling of new wells. When final figures are available, crude oil production in Colombia for 1935 will total between 18,000,000 and 18,500,000 bbls., all of which is produced by the International Petroleum Co. Ltd. (Canada). The Peruvian production will total for the year about 17,500,000 bbls., of which approximately 2,100,000 bbls. will be the output of Lobitos Oilfields, Ltd., and practically all of the remainder, the output of the Tropical Oil Co., 99 per cent of whose stock is owned by the International company. The actual production of the International in Colombia and that of Tropical in Peru for the first 10 months of 1935 and 1934 is shown in the accompanying table.



View of refinery of the International Petroleum Co., Ltd., at Talara, Peru.

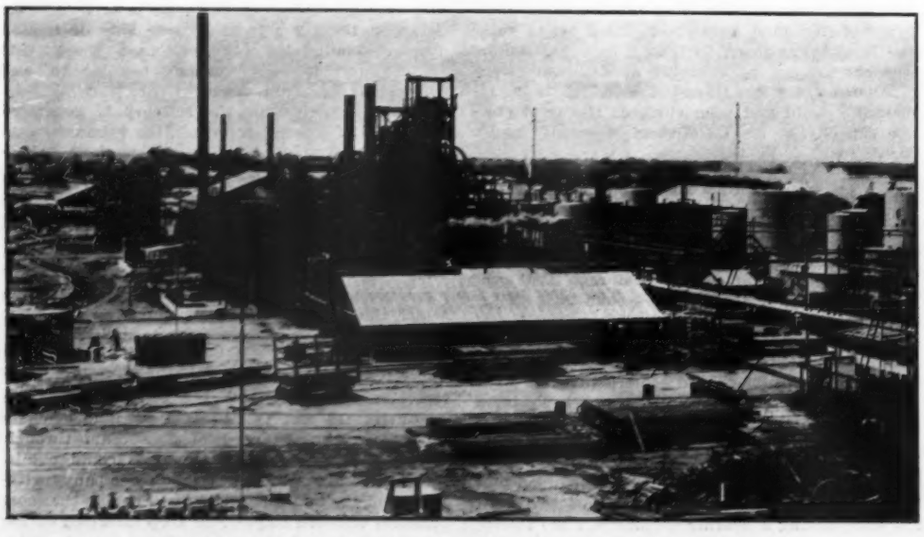
Unit Operations

Probably in no other country are conditions as ideal for carrying out unit operations in the production of crude petroleum coupled with the utilization of field gas for repressuring and gas lift. The producing properties are held in large tracts with the requirements of offset drilling common to the operations in many other countries, not a factor. There is practically no gas waste in the operations of the International and Tropical companies in the two countries. The wet gas from the wells is run to absorption plants and the gasoline extracted. The residue gas plus some dry gas is then available for both repressuring and gas lift operations. The repressuring operations commenced in 1927 and have materially increased the extent of the recoverable reserves and the life of the properties. In recent years due to this situation it has not been necessary to drill a large number of new wells to maintain or increase production.

In Peru where the International company will establish a new record in production this year the company has six natural gasoline plants of the absorption type to handle the wet gas from the wells. These plants are located in various parts of the field. From 1928 to 1934 inclusive, these plants processed over 90,000,000 Ms feet of gas. During these years nearly 40,000,000 Ms feet of gas was used for repressuring of sands and over 10,000,000 Ms for gas lift. At the start of this year the company had 1,665 producing wells. In Colombia, the Tropical company has five absorption plants in operation and for the period, 1928-1934 inclusive they processed over 89,000,000 Ms feet of wet gas. For this period over 31,000,000 Ms feet of gas was used for repressuring operations and nearly 6,500,000 Ms feet of gas for gas lift. The number of producing wells on the company's properties at the start of this year was 641. These figures indicate the importance that the companies attach to repressuring and gas lift in the routine operations of their properties.

COLOMBIA AND PERU

The International company has gradually expanded the operations of its refinery at Talara, Peru and over the past two years the output of the Tropical refinery at Barranca, Colombia has increased approximately 50 per cent. The Talara refinery which is complete in its operations has a crude oil capacity of 16,000 bbls. daily with 6,800 bbls. cracking capacity. The Barranca refinery has a crude oil capacity of 6,000 bbls. daily. At the latter refinery a new phenol treating plant for the solvent refining of lubricating oils has been completed and will shortly start operating. A new crude unit is being installed at the refinery and when this is completed the plant will have a capacity of 9,000 bbls. daily.



View of Barranca, Colombia, refinery of the Tropical Oil Co.

Operating Conditions

While field operating conditions are favorable, oil operations in Peru and Colombia involve more the routine management of producing, refining and transporting. The administration of the companies extends to many spheres of activity which are not necessary in most of the oil producing countries. The company assumes responsibility for the housing of employes, hospitalization and other living conditions outside the immediate operations of the company. The management has established camps and maintain living standards, comparable to those in towns and cities of United States and Canada. This involves substantial investments in service departments for power, light and fresh water, maintenance of entertainment facilities and other conveniences for employes and their families.

The companies also furnish petroleum products for distribution in the two companies. The demand for petroleum products over the past year has increased from 15 to 20 per cent in the two countries. The companies have a major transportation problem in moving products from the refineries to points of distribution.

The companies production is substantially in excess of the refinery requirements and this is

THE ELLIOTT HARD FORMATION CUTTER HEAD

FOR CORING THE HARDEST, TOUGHEST ROCK FORMATIONS

Note carefully this improved Elliott Hard-Formation Cutter Head. Even a casual inspection will give a very good idea of its fast cutting, smooth operating, long wearing ability.

It embodies important advancements in design, construction and operation which result in a free-rolling action with no tendency to jam, ball-up, or slide.

For more than a year it has been making exceptional recoveries and setting new performance records in the hardest, toughest formations—greatly exceeding previous records in high recovery, footage, and number of runs without rebuilding or replacement.

Interchangeable with Elliott soft formation cutter heads of similar size. Write for detailed information.

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ELLIOTT CORE DRILLS

• • ROTARY AND CABLE TOOL • •

View of the El Centro camp of the Tropical Oil Co. (International) in Colombia

moved by tanker to several countries. In addition to Canada the crude from these countries is sold to refiners in United States, South American and European countries.

Crude Oil Production in Colombia and Peru

Table gives crude oil production of International Petroleum Co., Ltd. (Canada) in Peru and that of Tropical Oil Co. (International) in Colombia. In addition, Lobitos Oilfield, Ltd., has a production in Peru amounting to approximately 6,000 bbls. daily.

	Colombia		Peru	
	1935	1934	1935	1934
January	1,653,647	1,012,780	1,248,465	1,188,540
February	1,141,696	903,471	1,105,508	1,041,658
March	1,446,821	1,017,147	1,218,852	1,086,887
April	1,377,299	1,193,736	1,160,942	1,037,127
May	1,486,896	1,730,095	1,281,189	1,085,192
June	1,518,460	1,683,691	1,240,281	1,187,031
July	1,639,054	1,646,739	1,276,305	1,233,804
August	1,567,307	1,691,314	1,272,038	1,300,253
September	1,555,676	1,627,632	1,275,919	1,259,901
October	1,623,372	1,646,293	1,307,946	1,303,554
Total 10 mos. (revised)	15,010,228	14,152,898	12,387,445	11,723,886
Daily average	49,375	46,555	40,748	38,565
Year	.....	17,340,724	.....	14,130,102

View of the El Centro field in Colombia of the Tropical Oil Co.

♦ ♦ ♦ ♦

VENEZUELA

Venezuela production in 1935 is estimated at a total of 149,207,000 bbls., a new peak. This is a daily average of 408,786 bbls. and is approximately 9.1 per cent of the world total. Venezuela continues in third place in the crude producing countries of the world.

Production for the past five years was as follows:

Year	Total	Daily average	Pct. of world
1930	136,987,662	375,309	9.63
1931	118,878,971	325,696	8.63
1932	118,109,763	323,704	9.03
1933	120,442,222	329,979	8.34
1934	139,537,454	382,294	9.17
1935*	149,207,000	408,786	9.11

* Estimated.

It is interesting to note from the above that, although Venezuela produced more in 1935 than in any of the years shown, its share of the world's production is less than it was in 1930.

Table No. 1, attached, shows the production by fields for the years 1934 and 1935, the total estimated production to the end of 1935, and the well data as of October 31, 1935. Of outstanding importance in the situation of the wells as of October 31st is the decrease in the number of natural flow and gas lift wells and the corresponding large increase in the number of pumping wells. This is more noticeable in the lake fields, which show 694 wells pumping at the end of October, 1935, against 380 in the previous year. This was brought about by the three operating companies' activity throughout the year in placing a large number of previously inactive and closed in wells on the pump. To the end of October 31, 1935, a total of 3,078 wells have been completed in Venezuela.

Crude oil production in Venezuela during November averaged 414,832 bbls. daily, a decline of approximately 12,000 bbls. daily from the October average, which was the highest of the year. The decline in November was largely accounted for by the decreased output of pools grouped under the La Rosa-Ambrosia area. Three companies operating in that area had reductions in their November production.

With the certainty that a new production peak for Venezuela will be established in 1935 with a gain of around 6 per cent over 1934, the previous peak, there are now discussions as to whether that country will continue to increase its production in 1936. Most observers apparently feel that the present known fields with continued active development will show a small gain in 1936. There are others, however, who are confident that Venezuela has reached a peak yearly production unless new fields are found. They point out that while all the proven territory has not been developed the older areas are declining in several instances. They also point to the fact that it was necessary to place approximately 350 wells on the pump this year, the days of natural flow and gas lift having passed for these wells. While many of the wells have increased their production with pumps, it is predicted that in a short time these wells will show declines which will be reflected in the total output of the pools in which they are located.

TABLE 1—CRUDE OIL PRODUCTION BY FIELDS IN VENEZUELA: SUMMARY OF DRILLING ACTIVITY

	1934		1935*		Total* to End of 1935	Well data as of October 31, 1935								Wells completed Jan.-Oct. 1935
							Producers				Non-producers			
	Total Production	Daily Average	Total Production	Daily Average		Wells drilling	Nat. flow	Gas/Air lift	Pumping	Closed in	In-active	Aban-doned	Total wells drilled	
Ambrosio	1,869,306	5,122	2,007,571	5,506	22,116,119	....	....	....	66	3	41	15	125	....
La Rosa	15,886,294	51,743	15,601,228	42,743	235,755,122	4	77	64	285	99	288	49	864	17
Bonfiez	2,572,168	7,050	3,922,019	10,745	12,531,606	1	34	....	3	9	28	5	80	17
Lagunillas	73,377,482	201,024	82,012,732	224,693	588,154,772	4	167	99	340	40	126	17	802	41
Others	.....	.....	.....	.....	63,480	....	....	....	....	5	7	1	13	..
Total Lake fields	96,706,251	264,949	103,543,550	283,681	858,621,099	9	278	163	694	156	490	87	1884	75
First 10 months, 1934	.....	.....	.....	.....	754,992,625	14	339	208	380	214	552	78	1782	115
La Paz and Concepcion	2,022,732	5,541	1,602,982	4,392	20,788,362	....	5	5	65	....	57	3	135	2
Tarra and Los Manueles	6,569,479	17,834	5,095,880	13,961	39,451,754	....	12	2	15	10	42	15	96	....
Mene Grande	15,529,917	42,532	15,139,272	41,590	157,654,328	4	43	63	....	47	108	16	278	25
El Mene and Media	995,418	2,727	849,987	2,329	21,732,135	....	4	32	56	....	87	134	313	....
Cumarebo	3,860,676	10,577	3,023,264	8,283	13,892,211	1	38	....	....	19	15	12	84	14
Quiriquire	13,721,836	37,594	19,796,630	54,237	49,654,913	7	76	....	18	9	18	11	133	31
Others	91,161	250	114,580	313	3,484,602	....	2	....	14	45	....	94	155	12
Total Venezuela	139,537,454	382,294	149,207,066	408,786	1,165,279,405	21	453	265	862	286	817	372	3078	159
First 10 months, 1934	.....	.....	.....	.....	1,016,113,942	19	497	356	529	316	819	339	2868	185

*Partly estimated.

EQUIPMENT · REAMERS · In 1936

Fig. 63 — In expanded position.

GLOBE-SMITH ROTARY UNDERREAMER Type U

The strong, simple design, positive expansion and successful, economical performance of the Globe Underreamer make it safe and profitable for all these uses:

1. To enlarge the hole for setting pipe rapidly and easily;
2. To set pipe with small clearance between strings, but with ample clearance in the open hole;
3. To enlarge the hole to secure a perfect water shut-off;
4. To enlarge the hole to set larger size liners without turning down couplings;
5. To remove plastered mud from the oil sand and more easily bring in well.

Made in all popular sizes (which expand from 3/4" to 1 1/4" depending upon size of underreamer) and described in your Composite Catalog.

Fig. 14 — Shank for both Types B and C.

Fig. 157 — Side View of Type B Head, showing long side-reaming edges.

Fig. 158 — The four circulation slots are just in advance of the cutting edge, on both Type B (above) and Type C.

Fig. 159 — Blades of the Type C head are set in an X-design.

GLOBE-SMITH DRILLING BITS Types B and C

These bits are unsurpassed for making fast, straight, full-gauge hole in all formations which can be drilled with drag type bits, including tough and sticky shales.

The circulation is directed through four slots just ahead of the cutting blades thus cleaning the cutting edges and preventing "balling-up" in sticky formations.

It is largely a matter of choice as to which Type is used, the difference being in setting arrangement of blades. Both types have notched cutting edges so that the total contact with bottom formation is only slightly more than the diameter of the hole. This design insures the necessary depth of penetration to secure maximum footage and cutting speed.

GLOBE TYPE D RE-DRILL BIT

The Re-Drill Combination is used for reaming out rat hole previously made with a core barrel or small bit, and also is used as a tandem type bit.

For reaming out rat hole it consists of a Re-Drill Shank fitted with a Type M-5 Diamond Point Pilot Bit of the same size as the rat hole and a Re-Drill Cutter of the finished hole size. For tandem drilling, where the small hole is drilled and reamed out to full size simultaneously, a regular Type M-5 Drilling Bit replaces the Diamond Point Pilot Bit.

Both the Re-Drill Cutter and the Bit Head are locked on the Shank with a joint stronger than the usual pin and box connection. All cutting and reaming edges are set with diamond substitutes, and are easily re-built and re-set.

GLOBE M-5 DRILLING REAMER

Generally used as a straight Reamer in full sized hole, this tool can be positioned at any point in the drilling string above a full sized bit.

The strong, safe method of assembly, the long life of cutting edges—which are easily rebuilt and re-set with diamond substitutes—insure economy in operation and maintenance.

Details and prices are in your Composite Catalog, or write us direct for the 1936 Globe Catalog, and for practical suggestions.

Fig. 163—Ready for Re-Drilling using an M-5 Diamond Point Bit as pilot.

Fig. 164 — M-5 Drilling Reamer, showing safe method of assembly.

GLOBE-WKW DRILLING BIT Type B-3

Since 1927 this bit has maintained its leadership for ability to drill straight hole in a wide variety of formations.

The teeth are stepped upward from the outer edge to the center of the bit head, and tend to cut a short core which is effectively broken up by the cross-cutting center blade. See illustration to right.

The molybdenum steel Bit Head is easily rebuilt, and locked on with bolts, the ends of which are then peened over to retain the nuts. The drilling weight is taken on the horizontal shoulder of the bit head and torque is taken by the strong bearing faces on the vertical bar. No strain is imposed upon the bolts.

For additional details please refer to your Composite Catalog.

Fig. 1—B-3 Bit Complete.

Fig. 7—The teeth cut a short core which assists in guiding the bit.

EASY TO ASSEMBLE AND CHANGE

GLOBE OIL TOOLS
TRADE MARK REG.

Write us for the 1936 Globe Catalog, or refer to the complete Globe Section in your 1936 Composite Catalog.

General view of the new plant of the Kermanshah Petroleum Co. (Anglo-Iranian) at Kermanshah, Iran, used to rerun blended crude

Anglo-Iranian Company's Operation in Northwest Iran Field Is Unique

The Anglo-Iranian Oil Co. Ltd., through its wholly owned subsidiary, the Kermanshah Petroleum Co., recently began a remarkable operation which has no duplicate in the petroleum industry. Briefly described it consists in the distillation of a crude oil in a remote field, the blending of the fractionated products as needed for transportation in a pipe line to another refinery where the finished products are finally refined to supply a local demand. That fraction of the original crude which is not transported is returned to the oil sands for recovery at a later date.

This unique method of operation was decided upon by the management following the development of a producing field at Naft-i-Shah in the foothills of northwest Iran (Persia) about 150 miles from Kermanshah, the main distributing center for that part of Iran. The problem which immediately confronted the owners of the field was to perfect an operation which would transport the crude to this distributing center and provide petroleum products in line with marketing requirements. It was realized that the ordinary type refinery operation would supply a surplus of residual products in a market which at present is largely confined to the light oils. Transportation costs of the heavy products to other markets is prohibitive which meant that the entire operation from the crude in the field to the delivery of finished products, had to be worked out on a basis of supplying only those products which the local market would absorb.

The distillation plant located at Naft-i-Shah consists of a pipe still, fractionating tower, steam generating plant and water pumping units. The cuts from this operation are run to separate tanks. They are then blended as needed and tendered to the 148-mile pipe line which transports the blended crude to Kermanshah. The blends will vary from time to time reflecting the seasonal requirements for the finished products.

Any residual product from this operation which is not required to secure the proper blend for the pipe line is returned to the producing limestone. The Anglo-Iranian company has used a similar operation in the main producing area of Iran where it has a production of approximately 140,000 bbls. daily. The heavy residual oil when returned to the producing formations becomes

IRAN

impregnated with lighter fractions and when recovered has properties similar to the original crude.

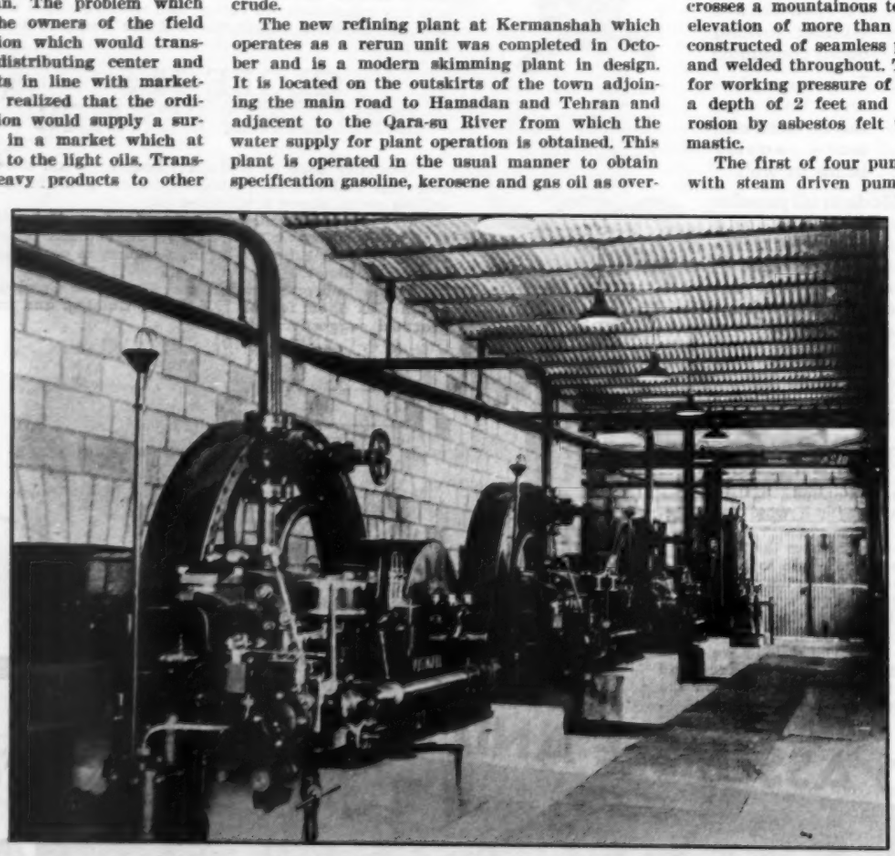
The new refining plant at Kermanshah which operates as a rerun unit was completed in October and is a modern skimming plant in design. It is located on the outskirts of the town adjoining the main road to Hamadan and Tehran and adjacent to the Qara-su River from which the water supply for plant operation is obtained. This plant is operated in the usual manner to obtain specification gasoline, kerosene and gas oil as overhead cuts with fuel oil the residual product. The operation is flexible to secure the percentage yields required to supply the marketing department. The light oil products are acid treated. Auxiliary equipment includes a Diesel driven electric power unit, steam boiler for process steam, machine shop, offices and laboratory. Bungalows for staff employes are provided.

Distribution of the finished products in cans is handled with motor driven trucks. Some of the deliveries are to isolated points over bad roads and special precautions are necessary in this phase of the company's operation. The company has marketing depots supplied by this refinery at Tehran, Qazvin, Hamadan, Isfahan, Burujird, Daulatabad, Sultanabad, Kerind and Shahabad.

The pipe line between the field and the refinery crosses a mountainous territory which reaches an elevation of more than 1 mile. The pipe line is constructed of seamless pipe, 3 inches in diameter and welded throughout. The line which is designed for working pressure of 1,500 pounds is buried to a depth of 2 feet and is protected against corrosion by asbestos felt wrapping and bituminous mastic.

The first of four pumping stations is equipped with steam driven pumps and is situated adjacent to the distillation plant at Naft-i-Shah which is 520 feet above sea level. The line then rises 1,700 feet in a distance of 40 miles to the second pumping station. The third pumping station is reached at an altitude of 3,200 feet, 64 miles from Naft-i-Shah. The fourth station is located practically on the crest of the mountain range which separates the plains of southern Iran from the high lands of the Iranian plateau, 4,850 feet above sea level and 76 miles from Naft-i-Shah. The maximum altitude of 5,350 feet is reached at a point about 118 miles from the field. From that point it drops over the remaining 40 miles to Kermanshah which has an elevation of 4,400 feet.

The pumping stations except the first steam driven unit, are equipped with diesel engines connected to



Engines in use on new Naft-i-Shah to Kermanshah pipe line of Kermanshah Petroleum Co.

tery of Maloney 250-Bbl. Tanks, Equipped with Maloney Cantilever-Type Steel Stairways and Walkways, Rusk County, Texas

THE PIONEER—AND STILL PIONEERING

Maloney Has Led in Perfecting Detail after Detail

There is little credit in starting something—if e pioneer does not then *continue* to be progressive. ince introducting the first bolted steel tank, in 1912, ALONEY has never stood still. We originated e idea—then we set out to *perfect* the product. he process of improving MALONEY Tanks and alkways never stops.

Result: Today MALONEY offers products rfected in every detail—many of their advantages *clusive*. Among the outstanding advantages of ALONEY Tanks are construction of Keystone opper Steel; patented "Crimp" at all seams and ints insuring accurate fit of parts; improved 2x2 eel deck rafter; special cloth-inserted red rubber cking; special bolts of 90,000-lbs. tensile strength; tra large clean-out plate 30″x48″; aluminum non-park vacuum-pressure valve with wide opening and elf for thief inside.

Our red Chromated Iron Oxide Paint, highly esistant to corrosion, is now used to coat interiors nd as priming coat for exteriors. Finish coat for xteriors is highest grade Aluminum Paint contain-g 1-3/4 pounds of fine-meshed Aluminum powder aste to each gallon of spar vehicle.

GALVANIZED—IF DESIRED

Our most recent innovation is the offer of ALONEY hot-dip GALVANIZED tanks in all .P.I. standard sizes. These tanks are standard ALONEY Tanks, completely fabricated, and ALVANIZED AFTER FABRICATION. Spe-ial galvanized bolts of 90,000-lbs. tensile strength are used. Galvanizing AFTER fabrica-tion assures that all edges, includ-ing bolt holes, are galvanized, and avoids damage to the galvanized coating during fabrication.

Coating is pure zinc applied by the hot-dip proc-ess, the spelter weighing 5 pounds to 100 pounds of steel. This coating is the best that can be produced and affords maximum protection against crude cor-rosion.

STAIRWAYS AND WALKWAYS

The MALONEY self-supporting, sectional steel Stairway and Walkway we offer as the strongest, simplest, most easily erected product in its field. Standard 4 and 6-foot units render it possible to quickly construct any combination and length of stairways and main or branch walkways that may be required. Walkway units are welded at all cor-ners, and cross supports are welded beneath the tread every 2 feet. No ground supports. Strictly non-sagging. Improved non-skid tread.

These stairways and walkways are constructed of 12-gauge Keystone Copper Steel. Our special red Chromated Iron Oxide Paint is used as priming coat and our high-grade Aluminum paint as finish coat.

EXPORT SERVICE

MALONEY renders, through export connec-tions at New York and London, efficient shipping service to foreign fields. Tanks are packed in sturdy steel-bound crates which conform to the customs regulations of the countries to which they are shipped, and shipments are expertly routed to reach destinations in minimum time. MALONEY Tanks are widely used in for-eign oil fields. New York Of-fice: National Supply Corp., or Oil Well Supply Co. London Office: Rose Lloyd & Co., Ltd.

Capacities: 100 to 10,000 Bbls., A.P.I. Dimensions.

MALONEY TANK MFG. CO.

PACKED IN STEEL-BOUND CRATES FOR EXPORT

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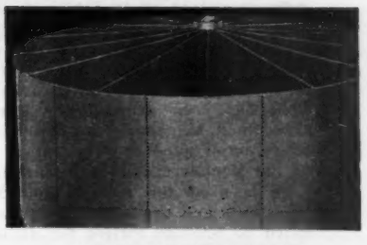
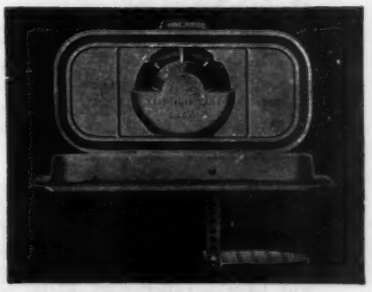
PATENTED CRIMP

PERFECTED RAFTER



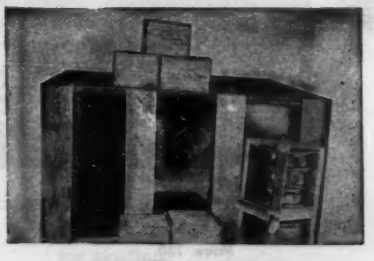
NEW SEGMENTAL DECK

CLEAN-OUT PLATE



ALUMINUM VALVE

NON-SKID WALKWAY



STEEL-BOUND CRATES

reciprocating pumping sets. The fuel for these engines is pumped through the line in slugs as needed and stored in tanks adjoining the stations. All stations are connected by a telephone system.

The refinery at Kermanshah has a capacity of 3,000 bbls. daily. Present operations are on a basis of approximately 2,000 bbls. daily.

Crude Oil Production in Iran Decreased Due to Restriction

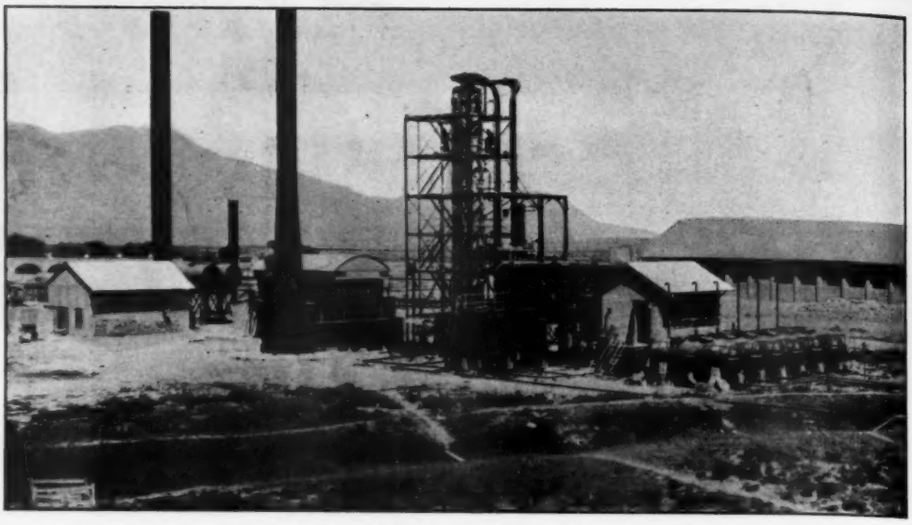
Crude oil production in Iran in 1935 probably will be 4 to 5 per cent under the total for 1934. The decrease does not reflect a permanent falling off in the production of the fields of Iran but is due to policy of the Anglo-Iranian Oil Co. Ltd., which holds the concessions, to produce only such oil for which there is ready market.

The outlets for the crude oil production and refinery output of Iran have been reduced in a minor way due to the advent of Iraq crude oil in world markets over the past year. The Anglo-Iranian company is one of the four owners of the Kirkuk concession in Iraq. Oil from this field has been available in European markets throughout the past year due to the completion of a major pipe line system to two terminals on the Mediterranean. Deliveries in recent months have been at the rate of approximately 75,000 bbls. daily and the Anglo-Persian company is obligated to provide outlets for at least one-fourth of this production. The company has reduced its deliveries of Iranian crude oil to its refineries in Great Britain and France to provide outlets for Iraq crude oil.

Aside from its refineries in Great Britain and France, the Anglo-Iranian company has an enlargement and improvement construction program under way at its Abadan, Iran refinery which when completed will result in a plant capacity approximately equal to the present crude oil production. The refinery construction program part of which has been completed is probably the most important of the refining industry over the past year.

The expansion covers practically all phases of the refinery operations from crude distillation, to storage tanks including power plant equipment. In the crude oil end, the company is building a single unit which will have a capacity of 65,000 bbls. daily. It is said to be the largest single crude unit ever built. In addition the company is building a two stage atmospheric and vacuum unit which will have a daily crude oil capacity of 35,000 bbls. It is also one of the largest units of its kind ever built. This unit in addition to the light products will provide lubricating oil distillate and other special cuts.

In the high pressure distillation side of the refinery new installations are being installed which will give a reforming capacity of 50,000 bbls. daily. Another new unit is a stabilizer which will have a capacity of 12,000 bbls. daily. The plant when the present program is completed will have a capacity of 150,000 bbls. daily. For several years it has been one of the largest refineries of the petroleum world.



Close-up view of rerun unit of Kermanshah Petroleum Co. (Anglo-Iranian) at Kermanshah

No developments of special interest in the producing end of Iranian operations have been reported over the past year. Routine drilling operations are carried on in the proven areas with at least one extension test completed as a producer recently. The management has devoted considerable time to the perfection of producing operations of old wells.

In northwest Iran the company this fall completed the combination pipe line and refinery operation which has made its Naft-i-Shah production available to the markets of that area. This operation is explained elsewhere in this issue. The field is an extension of the Naft Khaneh field which was discovered several years ago.

Following is the crude oil production of Iran for the first 10 months of 1935, 1934 and 1933: (metric tons)

Month—	1935	1934	1933
January	630,102	594,970	569,000
February	587,095	569,786	419,000
March	697,000	640,505	530,000
April	584,000	612,033	569,000
May	561,000	664,015	624,000
June	660,000	628,435	636,000
July	607,000	653,893	664,000
August	662,000	698,066	667,000
September	610,000	707,917	587,000
October	587,000	642,790	650,000
Total 10 months (revised)	1,653,647	6,412,410	5,855,000
*Daily average in barrels	152,120	159,260	145,410

*Factor used in converting tons to barrels was 7.55.

Local Superstitions Are Worry to Far East Operators

Observance of local religious customs and respect for native superstitions are often part of the duties of those in charge of operations in the Far East.

Nederlandsche Koloniale Petroleum Maatschappij (N.K.P.M.) recently in expanding its refinery near Palembang, South Sumatra, found it necessary to clear off additional sections of the adjoining jungle to provide the space required. In a section of the European camp where new houses were built, a tree was left standing to provide shade and improve the appearance of the camp. The tree shortly died and the management ordered the true cut down and removed.

A gang of native workmen refused to touch it claiming that it was "holy." Some Tamil Indians took a few licks at the tree and then ran away, maintaining that they heard screams coming from

FAR EAST

the branches. The report spread quickly among the native employes that the Spirit of Soengei Gerong lived in that particular tree and he had become annoyed that the white man was using his land. It was said that the spirit had let it be known that if any further attempts to cut down the tree were made an American would surely die.

A little later a gang of Chinese Coolies was assigned to dispose of the tree and had done some work when the whistle blew, ending the day's labor. That night an automobile containing five American construction men skidded off the road. One man was killed instantly and the others injured. This was considered proof by the natives of the anger of the spirit, and even some of the white employes became nervous. The morale of the entire camp was definitely affected.

Something had to be done to remove the tree and at the same time appease the feelings of the powerful "hantu" who lived in it. Finally one of the local priests sacrificed a goat at the foot of the tree and at the same time respectfully requested the "hantu" to pick out another abode in a larger and more beautiful tree of the jungle. This he apparently did, for the tree was removed without further trouble.

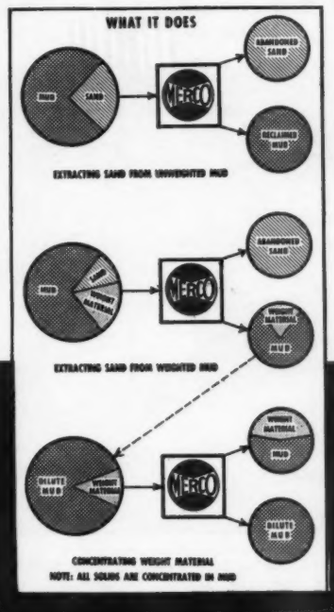
In 1926 when the first unit of this now major refinery was built it became apparent to the management that it was necessary to observe certain local customs before starting operations in order to retain the good will of the native personnel. In a formal ceremony it was necessary to propitiate the local gods, the devils and the spirits. the natives call this particular ceremony a "saletan" or in other words, "a making safe." In more civilized countries it has its counterpart in the breaking of a bottle of champagne over the stem of a ship before she is committed to the deep or in the act of church dignitary in spraying a few drops of holy water over the threshhold of a new edifice.

Distributing depot of the Kermanshah Petro leum Co. (Anglo-Iranian) at Daulatabad, Iran

MERCO

CENTRIFUGAL SEPARATOR

FOR DESANDING & RECONDITIONING ROTARY MUD



With a settling force of 150 times that of gravity, The Merco Centrifugal Separator mechanically removes the mud and cuttings from the mud. It reconditions drilling mud and recovers mud-weight materials by concentration. Please request catalog and engineering data.

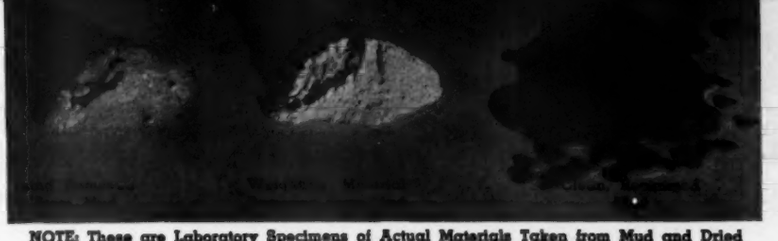
MERCO CENTRIFUGAL CO., 343 Sansome St., San Francisco, Calif.

TEXAS & MID-CONTINENT DISTRIBUTORS: W-K-M Company, Inc., Houston, Texas.

FOREIGN DISTRIBUTORS: W-K-M Company, Inc., 74 Trinity Place, New York City, N. Y.

APPLICATION

Type A20 is ideal for single wells or a small central mud plant for handling several wells.



NOTE: These are Laboratory Specimens of Actual Materials Taken from Mud and Dried for Examination

CAPACITY

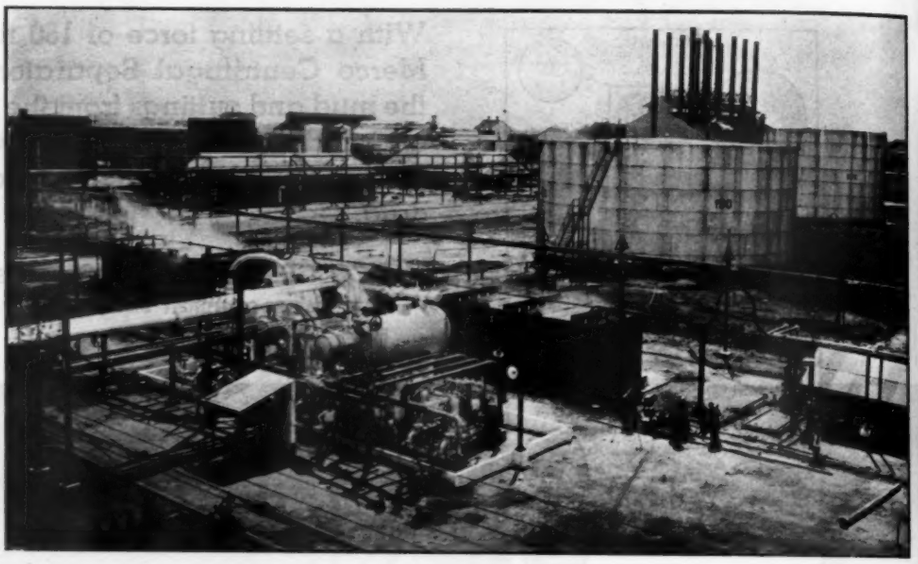
100 to 200 gallons per minute for the junior size, Type A20. 5 h.p. motor for starting.

Palembang Refinery Expansion Work Recently Completed by N. K. P. M.

Nederlandsche Koloniale Petroleum Maatschappij (N.K.P.M.) producing and refining subsidiary of the Standard-Vacuum Oil Co. in the Netherlands East Indies recently completed another expansion program at its Palembang refinery in South Sumatra. The refinery which is one of the largest and most complete refineries in that part of the world, now has a crude oil capacity of 40,000 bbls. daily and is practically complete in its operations. The latest improvements included additional cracking facilities, expansion of Edeleanu treating facilities and increased capacity for generation of steam.

The expansion of N.K.P.M. operations in the East Indies constitutes one of the most interesting refinery projects of recent years. The construction and operation have been carried on under unusual conditions as regard location, climate and labor. Despite these conditions the refinery provides practically a complete line of products for the markets of the Far East.

With promising developments in drilling activities in South Sumatra, in the middle twenties, the Sandard Oil Company (New Jersey), through its subsidiary the N.K.P.M., felt justified in proceeding with the erection of a refinery. Due to a merger in 1933, N.K.P.M. became a subsidiary of Standard-Vacuum Oil Co. It was decided to erect a 3,500 bbl. per day topping and cracking plant at Soengei Gerong on the Moesi River about 5 miles from the city of Palembang in South Sumatra. Construction work was completed late in 1926. This refinery consisted of a battery of five stills for crude and rerunning purposes, two 350-pound cracking coils of the tube and tank type, three 1,000-bbl. agitators for acid treating the cracked distillate and, unique at that time, an Edeleanu plant capable of treating some 125 tons per day of kerosene distillate by the liquid sulfur dioxide method.



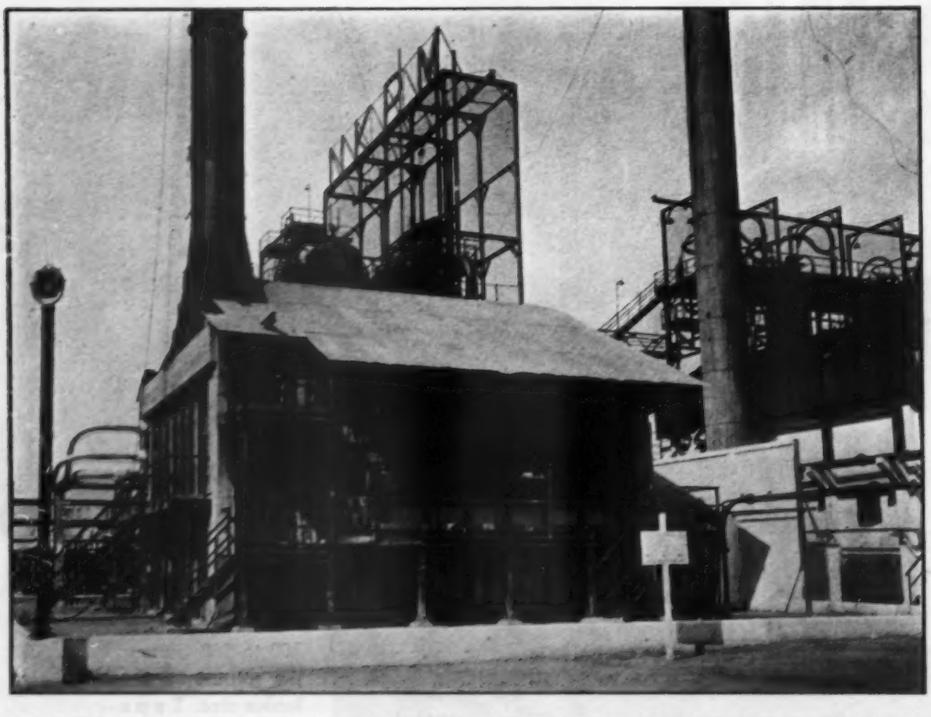
Tar coolers, water sump for centrifugal pumps and distillate group in cracking operation

Before any construction work could be commenced on this project, a dense jungle which covered the entire concession was cleared off. The ground was completely under water at high tide and it was necessary to construct a bulkhead and fill in the land with sand pumped from the river bed by large dredges. Further subterranean investigation pointed to the necessity of using piles under any very heavy pieces of equipment, including tanks and some buildings. This, of course, made construction costs rather high and resulted in about 25 per cent of the entire investment being below ground.

SUMATRA

The refinery operated successfully for a number of years and managed to increase its capacity to some 7,000 bbls. per day by the addition of very little equipment. In 1929 it was decided to increase the capacity of the plant to 25,000 bbls. daily and also add a paraffine plant to produce high melting point waxes which were present in the crude in very high percentages. In order to accomplish this, further areas of the jungle had to be cleared and filled in with sand to a height of 2 meters above the old jungle level and many thousands of piles were driven to support the new tanks and equipment. When this work was finally completed in 1931, the refinery consisted of a battery of eight stills and two pipe stills for running the crude, two 750-pound cracking coils and two 1,000-in. cracking coils and a new Edeleanu plant. Many more tanks constructed, as well as enlargements to all the other facilities of the refinery, including the native and European camps. The paraffine plant was capable of producing 40,000 tons per year of fully refined wax in all grades from 125 to 150 melting point. It is significant to note here that this plant is one of the very few in the world which produces the higher melting point waxes.

It was also found necessary to build a bulk loading terminal for topping off large tankers which could not load to more than half their capacity at the refinery due to the shallow water over the bar at the mouth of the Moesi River. Several large tanks, two docks and a pumphouse were built at Tandjong Ceban on the Rhio Strait some 30 miles east of Singapore and about 250 miles from the refinery. This station is kept supplied by three shallow draft tankers.



Recently completed 750-pound cracking unit at Palembang, Sumatra, refinery of N.K.P.M.

The Oil Bank of America

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Port of Spain, Trinidad
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INDIA, Yenang Young, Burma

MEXICO, Tampico

ANGOLA, Loanda

FRANCE, Port Jerome

AUSTRIA, Vienna

ROUMANIA, Ploesti

During the first eleven months of 1935, the NATIONAL BANK OF TULSA made new loans (exclusive of renewals) to 3,164 individuals, corporations and firms—a total of $20,212,207.26 . . . . an average of $1,837,473.57 per month.

NATIONAL BANK OF TULSA

TULSA, OKLAHOMA

New Martigues Refinery Is Designed to Secure Maximum of Efficiency

The Compagnie Francaise de Raffinage recently started operating its new refinery at Martigues, France, especially designed to secure the maximum efficiency in the production of light oil products. The refinery is the second built by the company which is controlled by Compagnie Francaise des Petroles in which the French government is interested. The parent company owns 23¾ per cent of the capital stock of the Iraq Petroleum Co., Ltd., which operates a large producing concession in Iraq.

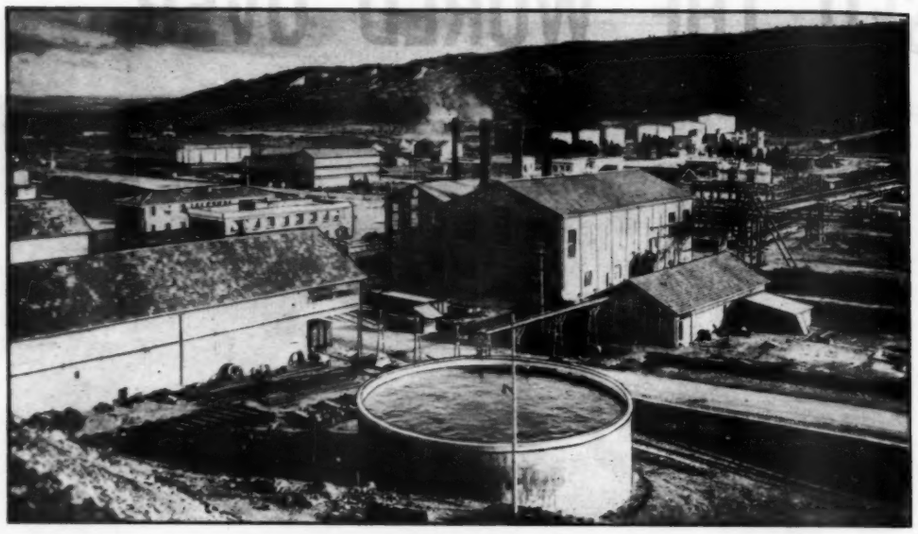
The Martigues refinery, known as Raffineria de Provence, near Marseille on the Mediterranean has a 9,000-bbl. capacity and its operations are confined to distillation, cracking and reforming.

The plant was designed to operate with Iraq crude oil. This crude is high in sulfur content which is reflected in plant corrosion and treating problems. The straightrun gasoline from the crude is low in octane rating and this fact accounts for a relatively high reforming capacity for the naphtha cuts. The gas oil cracking and naphtha reforming facilities of Kellogg design constitute a combination operation which assures the maximum yield of high octane gasoline from the crude.

The crude distillation is in three stages. The first stage is a pre-stabilization operation in which the crude is freed of fixed gases and the lightest gasoline fractions. The other two phases are atmospheric and vacuum distillations to secure gasoline, naphtha, gas oil and fuel oil. The plant is designed to secure an asphalt cut if desired. The refinery has a rerun unit and has its own steam power plant and the usual auxiliary equipment.

The combination unit is designed to crack 3,500 bbls. of 30° gravity gas oil daily to an ultimate yield of gasoline and fuel oil. The reforming phase has a capacity of 2,400 bbls. daily operating with 400 endpoint naphtha having an approximate gravity of 60° A.P.I. The design also provides for the maximum production of 1,000 bbls. per day of diesel oil. When the maximum yield of diesel fuel is to be obtained, the gas oil charging capacity will be 4,500 bbls. daily.

In the operation of this unit the virgin gas oil is pumped through a top tray gasoline reflux exchanger and a recycle stock exchanger before entering an accumulator drum where it mixes with recycle material withdrawn from an intermediate pan in the high-pressure combination evaporator and bubble tower. A condensing turbine driven centrifugal pump circulates this mixture of virgin oil and recycle through the high pressure Cross cracking furnace.



Power plant and office building at Martigues, refinery of Compagnie Francaise de Raffinage

FRANCE

The hot oil from the furnace is discharged into a high-pressure distillation drum where the cracking reaction is completed. Part of the recycle stock withdrawn from the intermediate pan in the tower which has been used to preheat the feed and reboil the stabilizer bottoms, is introduced into the high pressure chamber as quench. The remainder of the oil withdrawn from the intermediate pan is used as evaporator reflux and bubble tower intermediate reflux.

The 2,400 bbls. of naphtha is pumped through a tubular heat exchanger and naphtha reforming furnace. A second recycle stream from the intermediate pan in the high pressure tower supplies the naphtha preheat. This stock is subsequently pumped to the reforming furnace transfer line as quench to reduce the temperature before the pressure is relieved. The discharge from the naphtha reforming furnace also enters the base of the high pressure evaporator tower.

Pressure tar is withdrawn from the base of the evaporator to the fuel oil flash tower operating under approximately atmospheric pressure. The fuel oil product is pumped from the base of the flash tower through cooler to storage.

The distillate flashed from the pressure tar passes overhead from this tower, is condensed and directed into a flash distillate drum. This distillate is pumped through the flash tower partial condenser where it is preheated by the overhead vapors from the flash tower—and diesel oil stripper if in operation—and thence to the bubble tower section of the high-pressure tower over the lowest two fractionating trays. A portion is introduced into the top of the flash tower as reflux.

The recycle stream used to reboil the stabilizer and stripper bottoms and to preheat the gas oil feed is cooled and pumped into the lower portion of the bubble tower over the two lowest fractionating trays. As previously mentioned some of this stock is diverted to quench the distillation chamber transfer line.

Any diesel oil desired is withdrawn from a bubble tray in the upper section of the tower. Condensate withdrawn from the top bubble trap is used to preheat the gas oil feed.

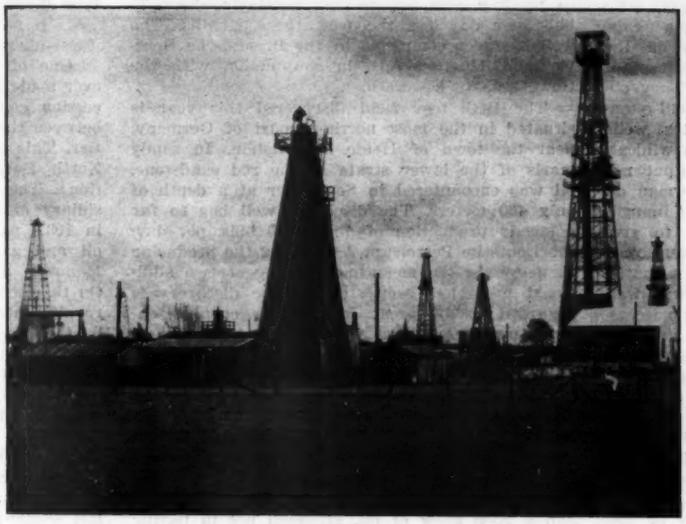
The unstabilized gasoline pumped to the stabilizer, is preheated by the stabilized gasoline from the stabilizer tower. The stabilizer tower bottoms are reboiled with recycle from the bubble tower. The top of the stabilizer is refluxed by partially condensing the vapors from the top of the tower and pumping them back as reflux.

Tank farm and gasoline treating plant. Tank wagon and loading facilities in foreground

Germany Reports Five New Oil Fields; Government Subsidizing Exploration

By CARL H. EHLERS

Germany's trade balance is principally burdened by her imports of textile raw materials and oil products. For instance, in 1930, she imported oil products of various descriptions exceeding $100,000,000. The United States share in these imports amounted to between 40 and 50 per cent. During the past four years, these imports have been reduced by more than half. As a natural consequence of the Reichsbank's low gold reserve and foreign exchange holdings, Germany is trying to replace foreign imports through domestic production, both natural and synthetic. While it is true her oil production is steadily increasing, her oil consumption likewise shows an accelerated upward tendency. Germany is motorizing fast. Automobile production has increased approximately 25 per cent during the year. She has lowered or abolished taxes on automobiles and has started an automobile express highway building program on an extensive scale. Her crude oil production for the year based on figures of the first 11 months is estimated to reach a total of more than 3,000,000 bbls. for the year, against 2,300,000 bbls. for 1934 or 445,000 bbls. in 1924 or 260,000 bbls. in 1922. This establishes that Germany is an oil country of greater potentiality than many have realized.



Contrasting rigs in Nienhagen field

Subsidies for Drilling

The most significant fact with respect to the future development of the German oil industry is, the government's inauguration of a systematic drilling program by virtue of subsidies in various, so far, undeveloped sections. This development is entirely in line with the government's policy designed to obtain results at any cost, disregarding early failures or temporary difficulties and augurs well for Germany's endeavor to become eventually independent of oil importations.

The Reich drilling program has netted her five new fields capable of commercial production, far apart from each other and from known fields thus giving, especially the northwestern German plain geologically an entirely different aspect as to its ultimate production potentialities. As a result of this constructive policy, Germany has now nine producing oil fields as against four in 1934. The four old fields, i.e., Wietze, Nienhagen, Edesse and Oberg, are all within a radius of about 30 kilometers from the city of Hanover.

GERMANY

Wietze Field

This, the first field in Germany, is about 30 kilometers northwest of the city of Hanover. The discovery well was drilled in 1859, a short time beforre Colonel Drake discovered oil near Titusville, Pa. The Wietze discovery, however, did not result in any great optimism in Germany. Only in 1881, a systematic drilling campaign was inaugurated, resulting in a total production of about 20,000 bbls. that year. The pool reached its peak of about 850,000 bbls. in 1908. Since, the output has progressively declined, but during the past few years has remained nearly stable with an average output of approximately 400,000 bbls. per year. The pool covers about 2 square miles and has netted a total production of more than 13,500,000 bbls. About one-half of the Wietze production is obtained through an "oil mine." There are two shafts from which the oil sand is mined by gallery methods. The mine was built in 1919 and produces about 600 bbls. daily.

Germany's "oil mine" near Wietze operated by Deutsche Petroleum, A.G.

Nienhagen Field

This is today the most prolific field in Germany, about 28 kilometers northeast of Hanover. Although shallow drilling operations had been begun as far back as 1862, more systematic operations, designed to open deeper horizons, were only started in 1921. The pool produced less than 200,000 bbls. in 1924. During the first 11 months of this year it yielded an average monthly production of 165,000 bbls. of 1,980,000 bbls. for the year, about 66 per cent of the entire German production. It is claimed the potential of the Nienhagen field is far greater. While some of the wells drilled in the most northern part have encountered edge water, the field still has large possibilities toward the east, west and south.

Eddesse-Oelheim Field

The first well was drilled in this field (about 27 kilometers east of Hanover) in 1880, finding production at a depth of only 70 meters. The pool reached its peak of about 38,000 bbls. in 1882. The production gradually declined but was maintained at a satisfactory paying level until 1915 when water broke in, flooding the shallow output, as no precautions had been taken with respect to water shut-off. The field was then practically abandoned and has remained the sleepiest of Germany's oil fields. The initial success in 1881 resulted in Germany's first "oil fever" when a price of RM 5,000 was paid for one morgen (five-eighths of an acre) of leased land.

In 1929, Germany's best known wildcatter, Anton Raky drilled a test about 2 kilometers north of the old shallow field to about 1,100 meters, which resulted in an initial production of 750 bbls. per day. Raky then drilled a number of additional wells, which also yielded production in paying quantities. In 1930, the Preussische Bergwerks & Huetten A.G. purchased the entire field, comprising about 1,000 acres for RM 8,000,000. Subsequent drilling operations were not particularly successful. The field produces at present about 4,000 bbls. per month.

Oberg Field

This field is about 30 kilometers south of Hanover. Based on the

occurrences of seepages, drilling operations were started in this field in 1920, encountering a very high grade oil in the "Dogger" (middle jurassic) at the shallow depth of only 300 meters. The field comprises about 3,000 acres, practically all owned by Erdoel Bergbau A.G., Celle. The entire stock of this company was acquired by Deutsche Vacuum Oel A.G. (Socony-Vacuum) in 1933, which controls from 80 to 90 per cent of the entire output of the Oberg field. While in 1934 the field yielded an average production of 7,000 bbls. per month, the output has increased considerably reaching its peak with 24,000 bbls. in October of this year. Only a few weeks ago, Vacuum was very successful in its drilling operation by completing a well with a production of more than 600 bbls. per day from a depth of only 300 meters. This well is the most prolific pay found at Oberg for many years.

Five New Fields

In the Upper Rhine Valley between Basel and Frankfurt a/Main, on the left bank of the Rhine River — in Alsace, France — the Pechelbronn oil field is located, which through the Treaty of Versailles, Germany was forced to cede to France. The Pechelbronn field has yielded during the past few years a steady output of approximately 500,000 bbls. per year. Having lost the Alsatian fields, the Germans began drilling operations on the right bank of the Rhine in the neighborhood of the city of Bruchsal (Baden) in 1921. They obtained limited success by encountering small quantities of oil in the tertiary. These first test wells were drilled by Germany's most famous wildcatter, Dr. Anton Raky. Owing to the output not being in paying quantities, no other German oil concern was willing to assume the risk of inaugurating a systematic drilling campaign, to give this area a proper test. Only in the current year were operations resumed in connection with the government's drilling program. The first well drilled into the jurassic formation was successful, with an initial production of about 100 bbls. per day. A second well was drilled which likewise came in, so that the Bruchsal region had, in October of this year, a production of about 2,000 bbls. from these two wells. This resulted in further drilling activity. Additional wells are in the process of drilling near the city of Heidelberg and south of Bruchsal. It is contemplated also to give the area around the city of Baden-Baden a thorough test as well as certain parts of the Palatinate and the region between Heidelberg and Darmstadt.

North of the city of Hildesheim (between Hanover and Braunschweig) a new oil field has been opened on the flanks of the salt dome of Moelme. The oil is produced in the jurassic formation (Lias and Raet) from a depth of only 50 to 150 meters. The "Gewerkschaft Elwerath," the most successful producing company in Germany, upon completion of its first test well subsequently drilled five additional wells all of which came in producers. The production in this field was about 7,000 bbls. in October.

In September an apparently important strike was made near the small town of Gifhorn, 60 kilometers east of Hanover. The existence of a salt dome was not previously known, although in many regions of Hanover, numerous salt domes have been known for years through the search for potash deposits. The Gifhorn dome was discovered through geophysical methods within the scope of the Reich drilling program. It is important to note the discovery well was not drilled on the flanks of the dome, but right on top of the salt where it encountered in the Wealden a production of about 50 bbls. per day from a depth of only 285 meters. This strike apparently represents a new type of oil deposit in Germany, as in all probability the Wealden transgresses the salt-cap, so the oil-bearing sands must be looked for not only on the flanks of the dome, but also on the top of it. A second well was immediately started, which has likewise come in with a production of more than 100 bbls. per day. The Gifhorn field is being exploited by the Deutsche Petroleum A.G., which also operates the famous oil mine in Germany's oldest region, the Wietze field.

The fourth producing field was discovered near the Fallstein uplift, 20 kilometers northeast of the city of Goslar. While in the Hanover oil region, the producing horizons are represented by the jurassic and lower cretacious, the oil in the Fallstein area is contained in the dolomite of the Zechstein (Permian) formation. The discovery well was drilled to a depth of 1,500 meters where it encountered the expected dolomite with strong showings of gas. Finally the well started to produce also oil, making regularly about 75 bbls. per day for the past three months. The well has been completed by the Preussische Bergwerks & Huetten A.G. in conjunction with the Gewerkschaft Elwerath.

The fifth new field discovered this year is situated in the most northern part of Germany, near the town of Heide in Holstein. In sandy marls of the lower strata of the red sandstone, oil was encountered in September at a depth of only 400 meters. The discovery well has so far a steady production of about 130 bbls. per day, the Deutsche Petroleum A.G., being the producing company. In the meantime, drilling of two additional wells has been started. The discovery is regarded as of great importance, opening entirely new possibilities with respect to the whole region north of the old Hanoverian fields.

There is also quite some drilling activity in Thuringia where oil has been discovered in the shafts of a potash company. The oil bearing formation is the dolomite of the Zechstein (Permian). Near the city of Muehlhausen, a number of wells were drilled, encountering good quantities of gas but no oil with the exception of one well which had a good show of oil, although not in paying quantities. The potash company, the Wintershall A.G., however, has good prospects of obtaining production in its well near the city of Langensalza. This well has reached a depth of more than 1,100 meters and has encountered very good showings of gas, rich in gasoline contents, with some oil.

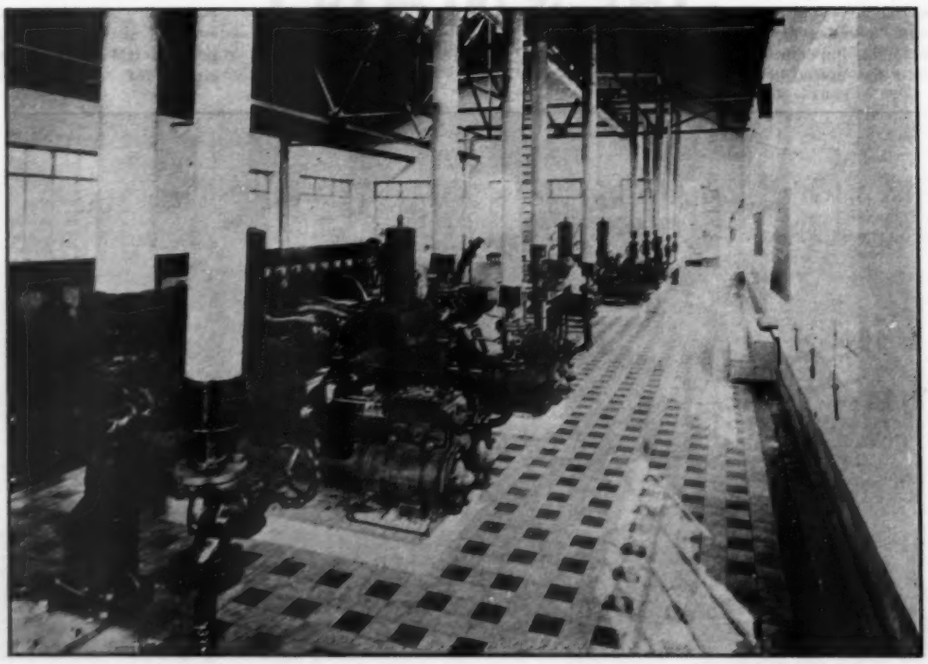
There are also indications oil will be encountered in the Bentheim-Ochtrup region, near the Westphalian-Hollandish frontier. The dolomite of the Zechstein (Permian) has been lifted in this area in easy reach by the drill. The Deutsche Tiefbohr A.G. has drilled a well near the small town of Ochtrup, which at a depth of about 500 meters encountered strong showings of oil and gas. A second well has been started, a short distance away. The Ochtrup leases belonged to the North European Oil Corp. which has transferred them to the Deutsche Tiefbohr A.G. for operation in consideration of a royalty to be paid to North European in case of production.

The most significant fact, with respect to the newest developments is that in the North German plain oil is encountered not only on the flanks of the salt domes, but also on top of the salt and below the salts of the Zechstein (Permian) and even in the lower strata of the red sandstone. This opens new possibilities for vast stretches of land in the North German plain, so that the Germans seem to be justified in entertaining high hopes as to future developments.

Wildcat Territory

One of the most important oil leasing deals ever made in Germany is represented by the concession covering the entire state of Oldenburg, between the city of Bremen and the Holland frontier. This concession was granted in 1929 to the North European Oil Corp. (Delaware corporation). The eastern half is now owned by a subsidiary of the Royal Dutch Shell group which, in 1931, paid for it, together with a number of oil and gas leases situated in the province of Hanover, an amount of approximately $900,000. On this acreage, the North European has a small royalty interest. The western half is now owned by the Deutsche Vacuum Oel A.G. (subsidiary of Socony-Vacuum) which came into possession of it by a contract between Vacuum and North European in May 1934, which provides to North European a certain profit-sharing interest in case of production. The Oldenburg area comprises no less than 2,000,000 Prussian Morgen or approximately 1,300,000 acres. The total rental per year for this vast area amounts to only the paltry sum of RM 48,000 of which each one-half is paid by the Royal Dutch subsidiary and the Deutsche Vacuum Oel A.G. According to the concession, the concessionees are obliged to drill four wells in each five year period and must complete four wells by May, 1939. The Oldenburg territory contains a number of salt domes, the existence of which has been established through torsion balance surveys made by North European and partly through actual drilling operations which encountered the salt proving the correctness of the geophysical work. Adjoining the Oldenburg region toward the west, lies the Ostfriesland territory where the Deutsche Vacuum owns about 20,000 acres of oil and gas leases which it acquired under a profit-sharing arrangement with the North European. A torsion balance survey made by North European in previous years likewise discovered several salt domes.

In addition to the leases and concessions the Vacuum acquired from North European Oil Corp., Vacuum purchased this year a con-



Interior of main transfer pump house at Redeventza refinery, Belgium

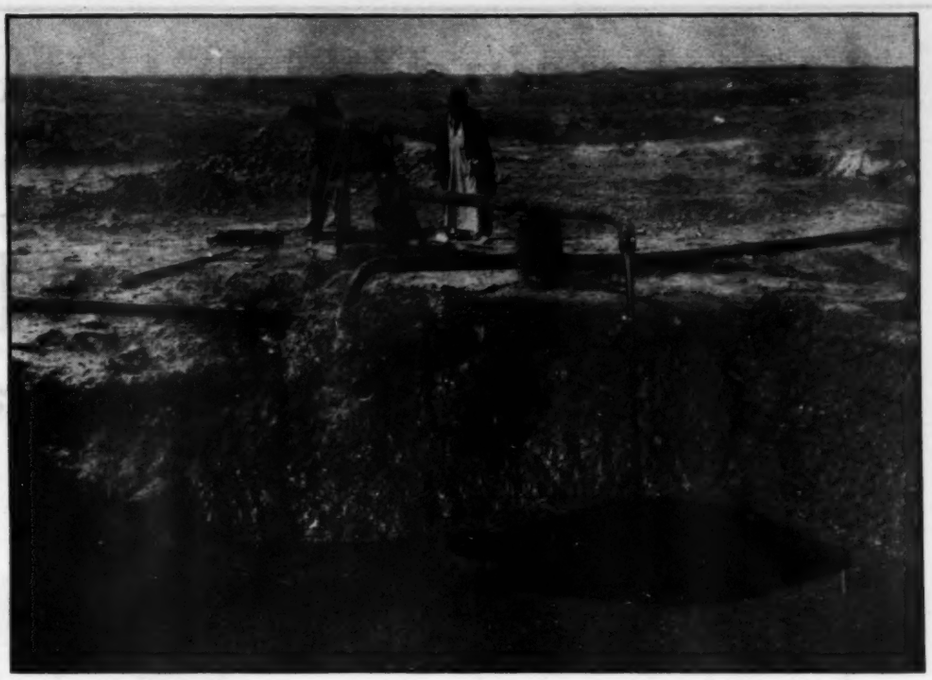
trolling interest in Bavarian Oil & Gas Corp., which holds a concession granted by the Bavarian government covering about one-half of the territory comprising the State of Bavaria. The drilling of a test was started recently on a structure, discovered through geophysical survey, near the town of Taufkirchen, north of the city of Munich. So far, in Bavaria, oil has been found in small quantities only near the Tegernsee Lake, in the south of Bavaria at the Swiss frontier.

Socony Vacuum's Position

Deutsche Vacuum Oel-Aktiengesellschaft, wholly owned subsidiary of the Socony Vacuum Oil Co., today occupies a most enviable position with respect to Germany's future oil industry. Vacuum almost for four decades has operated two large refineries in Germany and possesses an extensive marketing organization in that country. Through the acquisition of the capital stock of Erdoel-Bergbau, A.G., in 1933, the largest producer in the Oberg fields and through successful drilling operations in the prolific Nienhagen field, Vacuum has become within two years, the third largest producer of crude in Germany. During the current year its marketing organization has made considerable strides, credited to its advertising campaign within Germany which dwells on the fact that Vacuum's "Gargoyle" lubricant product sold in Germany, is manufactured out of German crude.

Owing to the discovery of the five new fields described the proven petroliferous region in Germany is no longer limited to the small area of which Wietze is at the north and Oberg is at the south. The Hanover fields have been extended to the north, to the town of Heide in Holstein, to Gifhorn towards the east of Hanover and to the Harz Mountains, south of Hanover.

We may expect that, from now on the search for oil deposits will no longer be a "noli me tangere" to Germany's financial and industrial community. It would be a pity if her hidden oil wealth were to remain dormant any longer. However, weighing the success of the past year, there is reason to believe that the Hitler-Schacht economic policy will make available in the near future much larger sums than the paltry RM 5,000,000 placed at the disposal of the Germany oil industry so far for the development of Germany's oil resources and that Socony Vacuum and Royal Dutch Shell will become increasingly active. Today, Germany's oil industry has taken a new lease on life, the importance of which must be obvious to the students of Germany's situation in general and her oil possibilities in particular.



Pumping bitumen from a well, Gayara, Iraq
(Copyright, American Colony Photo)

RUMANIA

The crude oil output of the Rumanian fields during October was approximately 710,000 tons, as compared with 680,000 tons during the preceding month. Drilling during October amounted to 27,000 meters, as compared with 25,000 meters during the preceding month. The production of the chief operating companies during the month was as under:

	Tons
Astra Romana	146,366
Steaua Romana	137,001
Concordia	103,175
Unirea (Phoenix)	84,901
Romano-Americana	49,779
Creditul Minier	40,012
Prahova	39,828
Colombia	38,009
I.R.D.P.	10,091
Dacia-Starnaphta	8,489
Petroleum Romanese	7,974
Foraky Roman.	7,655
Sospiro	3,290
Redeventza	2,722
Sondajul	2,529
Roumano-Belge	2,525
Sondrum	2,406
Petrolifera Rom.	1,900
Foraj-Lemoine	1,756
Petrolmina	1,673
Anglo-Petrolifera	1,587
Refoil	1,030

In October of last year the output was 749,047 tons. Rumania has produced a total of 6,956,060 tons in the first 10 months of the current year, against 6,982,393 tons in the same period of 1934.

Gusher in Kirkuk field, Iraq

British Supply of Oil in War Being Anxiously Discussed

Commenting editorially on an address by Col. W. A. Bristow before the Royal United Service Institution in London on British oil supplies in war, the London Petroleum Times Says:

Colonel Bristow estimates the cost of storing 5,000,000 tons of oil bomb-proof underground storage tanks, interconnected by a series of pipe lines, at £15,000,000 to £25,000,000. With a depleted navy a national oil storage plan might be the cheapest insurance the country could effect, particularly if a portion of the fuel oil were regarded as an emergency reserve for cracking stock for the manufacture of petrol.

The cost of building hydrogenation plants capable of producing only 1,000,000 tons of petrol a year would be at least £40,000,000, while, if the existing remission of duty on home-produced petrol were continued, there would be a loss of revenue of £10,000,000 annually.

Sir John Cadman, in his recent presidential address to the Institute of Fuel, said:

"Let us by all means produce every gallon (of home-produced fuel) that we can. Nevertheless, even the home production of liquid fuels can be paid for too highly."

Announcing! THE NEW DEAL'S

DUO-HYDRAULIC PIPE STRAIGHTENER

and Pipe Bending Machines

FEATURES:

A. Hydraulic Cylinder.
B. Shoes Scientifically Designed to Fit the Pipe. (3 shoes for 3 major changes in arc of pipe—standard equipment on each machine.)
C. Special Return Spring (Exclusive on these machines.)
D. Spring Enclosed for Safety.
E. Adjustable Carrying Rollers Designed Not to Kink the Pipe.
F. New Dual Hi-Pressure Quick-Acting Valves (Patent Pending) Exclusive Feature.
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H. Steel Sled.
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J. Fluid Tank.
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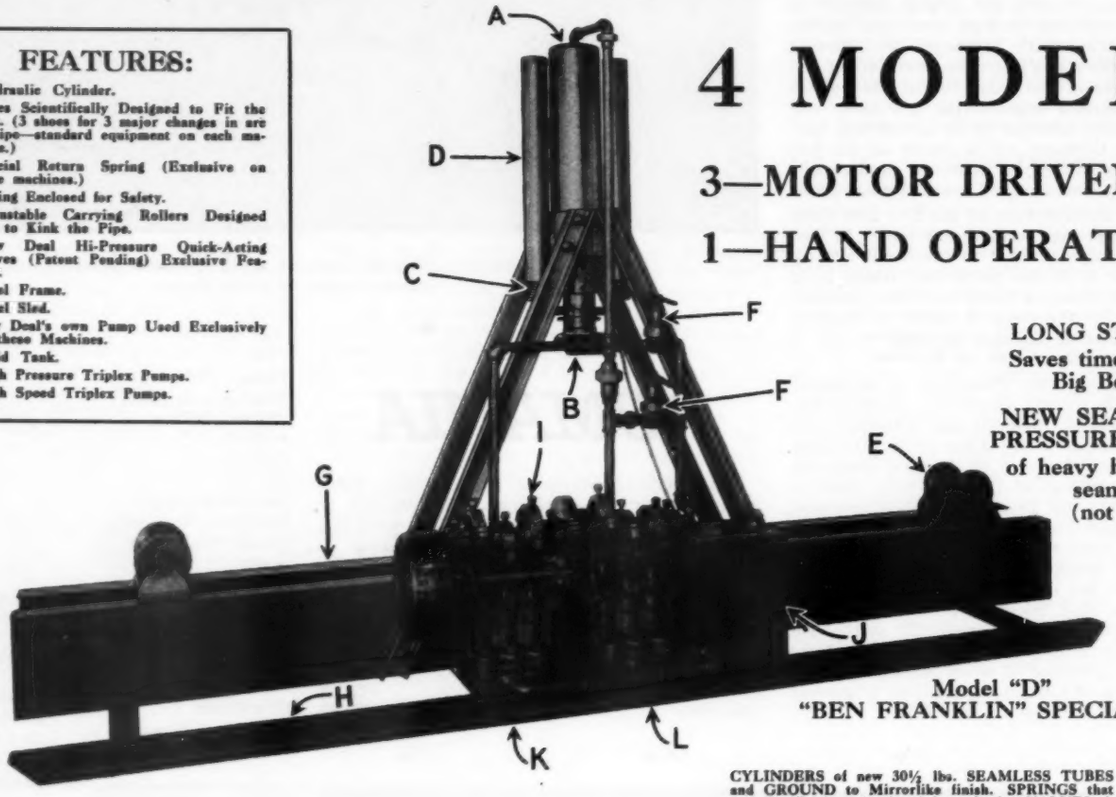

SPECIAL SHOES Designed to Fit the Pipe. Not to Kink it.

MOBILITY
SERVICEABILITY
STEEL FRAME

4 MODELS

3—MOTOR DRIVEN
1—HAND OPERATED

LONG STROKE
Saves time on the Big Bends

NEW SEAMLESS PRESSURE DRUM
of heavy hydraulic seamless tube (not just pipe)

Model "D"
"BEN FRANKLIN" SPECIAL

CYLINDERS of new 30½ lbs. SEAMLESS TUBES that are bored and GROUND to Mirrorlike finish. SPRINGS that are BUILT to our specifications (enclosed for safety). VALVES that are fully patented and used ONLY on NEW DEAL POWER DRIVEN STRIGHTENERS. SHOES (3 with each machine quickly changed), are cast-steel. LEATHER CUPS are standard size (purchasable anywhere oilfield supplies are sold). CARRYING ROLLERS can't slip off (always aligned).

"BEN-FRANKLIN" SPECIAL Model "D"

Handling either the lightest or heaviest weights, regular maximum capacity 8-5/8" OD. HIGH-SPEED HI-PRESSURE or BOTH the BEN-FRANKLIN SPECIAL is a machine DESIGNED and BUILT to be ALWAYS AT YOUR SERVICE getting the job done in a minimum of time with a maximum of service and satisfaction at a low cost. An average 5-hour job on your present manual straightener is an hour and a half's PLAY for the BEN-FRANKLIN SPECIAL. On steel base, mounted on steel sled with dual triplex pumps. 24" ram stroke carrying wheels and shoes to fit the pipe.

Model "B"— HIGH SPEED

Maximum capacity 8⅝" O.D. 29-lbs. (handles also 7" O.D. 24-lbs.) POWER DRIVEN. Equipped with Hi-speed triplex pumps. Ram stroke 24". It makes or straightens a bigger bend at one stroke. Is about five times as fast as the Model "A", is of heavier construction, and handles heavier weights per foot. Steel base, mounted on steel sled.
Power required: 3 h.p. electric or 6 h.p. engine.

Model "A"— HAND OPERATED

Manual or hand operated, on steel base and mounted on steel sled, carrying wheels and shoes designed to fit the pipe. Ram stroke 16" maximum capacity 8¼" O.D. A very efficient machine for straightening or bending light weight pipe or casing (maximum 7"—20-lbs., 8½"—24-lbs.) and where speed is not an especial object.

Model "C"— HIGH PRESSURE

PRACTICALLY THE SAME AS MODEL "B" except the pumps are HI-PRESSURE enabling this machine to handle the extreme heavy weights as 8⅝" O.D. 32- or 36-lbs. Only one-third slower than Model "B".
Power required: 3 h.p. electric or 6 h.p. engine.

SPECIAL MODELS BUILT TO ORDER—*Write for illustrated folder*

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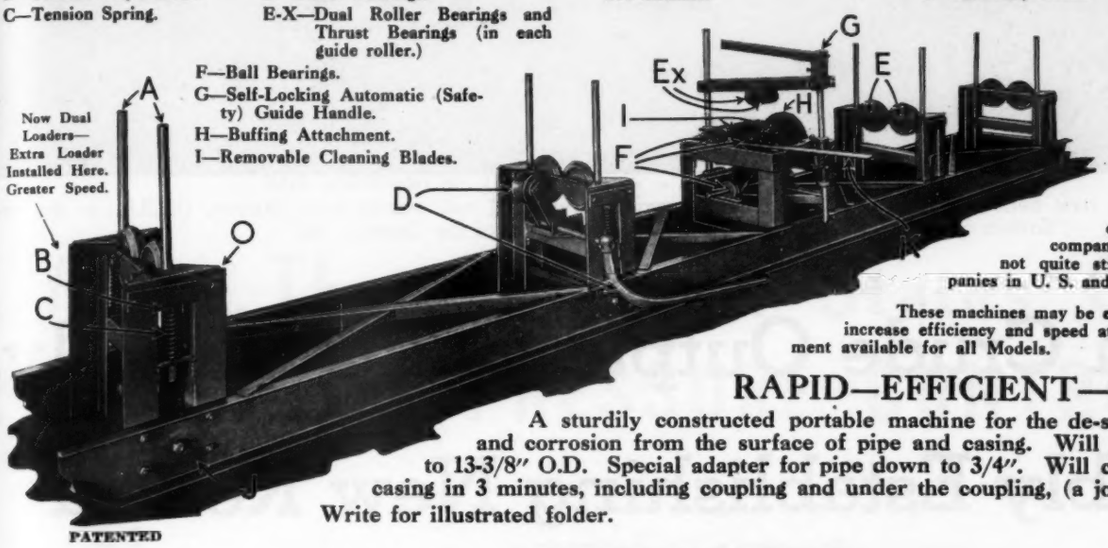
PIPE CLEANING MACHINE

with Dual Loaders

A—Removable Safety Bars.
B—Tension Adjustment.
C—Tension Spring.
D—Improved Rapid Loader.
E—Roller Bearings.
E-X—Dual Roller Bearings and Thrust Bearings (in each guide roller.)
F—Ball Bearings.
G—Self-Locking Automatic (Safety) Guide Handle.
H—Buffing Attachment.
I—Removable Cleaning Blades.
J—Note Sturdy Construction of entire machine.
K—Directional Bar.
O—Auxiliary Stand.



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A, B, C, D, and E, are Features Found ONLY on our De Lux (Pipe Line) Special.

DeLux Pipe Line Special Model (made in 3 sizes) designed especially to meet the needs of gas, utility and pipe line companies for cleaning pipe that is not quite straight. Used by major companies in U. S. and abroad.

These machines may be equipped with dual unloaders to increase efficiency and speed at low cost. Cutting-off attachment available for all Models.

RAPID—EFFICIENT—COMPACT

A sturdily constructed portable machine for the de-scaling of dirt, rust, scale and corrosion from the surface of pipe and casing. Will handle pipe from 2″ up to 13-3/8″ O.D. Special adapter for pipe down to 3/4″. Will clean a joint of 13″ O.D. casing in 3 minutes, including coupling and under the coupling, (a joint of 4″ in 70 seconds). Write for illustrated folder.

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WITH MANY NEW FEATURES

DUAL LOADERS DUAL UNLOADERS

DOUBLE DUAL GUIDE ROLLERS

CUTTING OFF ATTACHMENT
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DUAL BRUSHES
(gear driven — completely enclosed)

For big jobs involving miles and miles of pipe at high speed, where time is an element

---

Complete with Power—(Gas—Gasoline or Electric)

HEAVIER CONSTRUCTION GREATER CAPACITY
HIGH SPEED

Our own representative will personally supervise installation anywhere in United States or Canada without additional charge. These special models built only on order and guaranteed.

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Transporting casing to a new field in the U.S.S.R. A camel caravan carrying oil well casing from Guryev, U.S.S.R., to the new Kalinin oil field, in Kazakstan, on the northern shore of the Caspian Sea
(Sovfoto)

Russian Crude Output Gains Slightly, Probably Establishing New Record

After running behind 1934 in all phases of its operations over the greater part of the year it is now predicted that due to spurt in activity the last four months, the crude oil production in the U.S.S.R. for 1935 would probably be slightly ahead of the previous year, thus establishing a new record for the Soviet regime. The crude oil production in the U.S.S.R. in 1934 totaled 24,150,000 tons or approximately 465,000 American barrels daily. During the spring and summer months of 1935 production lagged and it was predicted that 1935 production might not exceed 20,000,000 tons. Production has since increased due to increased drilling particularly over the past 60 days and those in touch with conditions are predicting a minimum production of 25,000,000 tons for the year. Some estimates of the 1935 production which will not be announced officially for several weeks are as high as 28,500,000 tons.

The same reports state that final figures will show the greatest drilling activity in the history of the Russian oil industry with a total around 1,500,000 meters. The total in 1934 was 1,256,000 meters. Crude oil runs to stills at refineries, it is reported, picked up the last quarter of 1935 as more crude oil became available and total throughput for the year will exceed the 20,736,000-ton figure for 1934. In this connection new cracking units have been completed and placed in operation so that the gasoline cut output is expected to increase with more available in foreign markets.

Finally the latest reports which have not been officially confirmed are to the effect that the decline in exports which has been the rule in the U.S.S.R. oil operations for the past three years, was stopped the last quarter so that shipments were running ahead of the last quarter of 1934.

Volume of exports has been disappointing to the Soviet oil administration which had hoped for an increase this year over 1934. For the first nine months of this year the exports of crude oil and refinery products totaled 2,407,443 tons or approximately 61,000 bbls. daily. For the same period in 1934 the exports totaled 3,049,881 tons or 80,000 bbls. daily. In 1932, the peak year for exports they totaled over 6,000,000 tons or approximately twice the daily average for the first nine months of this year. It is pointed out in this connection that the September exports of 270,000 tons were only slightly less than the 272,000-ton total for September, 1934.

The decline in exports for the first nine months of 1935 is largely accounted by the decreased shipments of crude oil and gasoline to foreign buyers. The export division of the U.S.S.R. has been forced to buy large quantities of gasoline and smaller quantities of some of the other refinery products from refiners in other countries in order to take care of its commitments. It is said that the reduction in exports in the face of a domestic production approximately equal to last year and greater than in 1932 is largely due to the increased domestic demands for petroleum products. The increased production of all types of motor vehicles has increased the domestic demand for all products used as motor fuels including diesel fuels. It is also said that the demand for kerosene for lighting has increased with a potential market, as soon as the burning oil is available, several times greater than the present demand. Finally the railroads and expanded industries require more fuel oil.

U. S. S. R.

The following two tables show the exports of crude oil and refinery products for the first nine months of 1935 and 1934 and also the distribution of these exports by countries (tons):

	1935	1934
Crude oil	98,272	165,111
Fuel oils (including diesel oils)	910,816	1,023,432
Gasoline	487,485	879,492
Gas oil	381,107	425,000
Kerosene	305,370	309,421
Lubricating oil	194,491	209,979
Asphalt	15,261	24,346
Paraffin wax	11,029	9,337
Miscellaneous oils	3,612	703

EXPORTS BY PRINCIPAL COUNTRIES

	1935	1934
Germany	349,341	308,238
France	282,990	580,786
United Kingdom	234,660	340,286
Italy	170,191	480,102
Spain	151,110	389,857
Japan	112,412	17,158
Sweden	104,014	148,116
Belgium	83,137	113,924
Denmark	76,013	38,124
Turkey	38,216	11,262
Iran	25,326	22,481
Finland	14,246	16,874
China	13,980	52,302
Norway	12,653	9,515
Latvia	11,446	4,926
Netherlands	11,373	23,892
Lithuania	10,577	8,698
Other countries	26,066	66,608

The large losses in exports to France this year is in line with decreases from other countries. French refiners are now obtaining a large part of their new crude oil supply from Iraq and this has resulted in decreased crude oil and refined product imports from other countries. Rumania obtained a large part of the business which the U.S.S.R. has lost in Italy this year. The Spanish monopoly which in 1933 and 1932 secured a large part of its petroleum products from U.S.S.R. has reduced purchases this year. The largest increase this year comes from Japan where a company selling Soviet petroleum products has been given a part of the Japanese market under a cartel arrangement.

It is now reported in European oil circles that the Soviet oil administration is anxious to work out an arrangement with two or three international oil companies—presumably the Standard of New Jersey, Royal Dutch-Shell and Anglo-Iranian—by which these companies with wide spread marketing operations, will purchase all the petroleum products that the U.S.S.R. has in excess of its domestic requirements. It is also stated that the private companies are willing to consider such a proposition due to their desire to bring about more stable marketing conditions. Because all oil operations are owned by the government under the Soviet regime, the sale of export products has been attended with many political difficulties. Buyers of the Russian products have insisted on trade agreements by which the Soviet government would buy other products from them. In some countries there has been opposition to the sale of the Russian products. For several years the Socony-Vacuum Oil Co., Inc. through its subsidiary foreign companies has bought petroleum products from the Soviet which they have distributed to their own marketing outlets. Within the past month a contract was

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In order to better identify our service and equipment we are going to change our name on January 1st . . . . .

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Only our name is changed. We are still a service company specializing in the safe handling of high pressures, including:

- The running and pulling of tubing, drill stem, packers, etc., under pressure by the Otis patented method.
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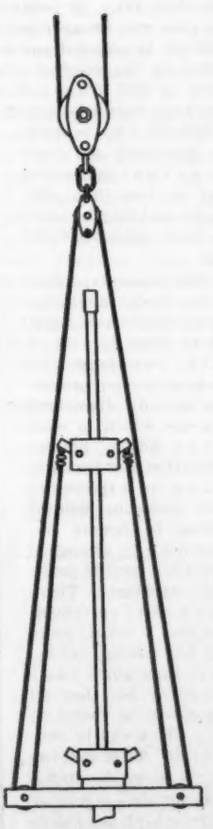

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A Service Company Specializing in Pressure Control

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closed for 500,000 bbls. of kerosene for next year. This kerosene will be distributed through its market outlets in the Far East. It is said that this arrangement has worked out satisfactorily both to the buyer and seller.

Statements made recently by those connected with the Soviet oil administration indicate that the great need at this time is additional drilling and refinery equipment. A year ago the Soviets planned to make large purchases in the United States but the business failed to materialize in the volume expected when the trade agreement between the two governments was dropped. More recently a special trade arrangement was made and purchases of equipment and supplies in the United States have increased with prospects of still greater business in 1936.

The government as part of its general industrial program has installed machinery to build equipment and materials needed in its oil fields and refineries. The administration has found, however, that due to the relatively small volume required in certain phases of its oil operations, that it would be cheaper to buy part of the material from outside countries which for years have made a specialty of the manufacture of equipment and supplies used in the oil industry. This explains the willingness of the oil administration to increase foreign purchases at this time.

Due to the lack of the necessary equipment the development of old and new fields is far behind the government's program as projected in its five-year plan starting in 1933. At that time it was hoped that the 1935 production of crude oil would total 42,500,000 tons or over 800,000 bbls. daily. By 1937 the plan called for a production of 1,250,000 bbls. daily. It became apparent shortly after the plan was inaugurated that it could not be carried out as planned and several downward adjustments in the original plan have been necessary. Early in 1935 it was indicated that the government this year would be satisfied with a production of 30,500,000 tons in 1935. As previously indicated the actual production will be less than that figure and may be short by more than 5,000,000 tons.

The immediate need of the Soviet oil industry at this time according to those in touch with conditions are funds to develop production already discovered in areas which in most cases adjoin present production and funds to carry on exploratory work including wildcat drilling in remote sections where geological work have located promising structures. There is general agreement that the U.S.S.R. probably has greater oil reserves than any other country but they no longer will be found in areas which can be conveniently developed as they have in the past.

As an example of condition geologists have discovered evidence of petroleum deposits in the Barass area of the Kuznetsh Basin, western Siberia. The Soviet oil administration plans to drill test wells at three points during the coming year in this section. Other likely areas are known in western Siberia.

As to what has been accomplished in drilling and refinery work over the year now being brought to a close a report during the fall months of the Council of Peoples' Commissars of the U.S.S.R. listed the following work for which 678,000,000 rubles was appropriated:

One cracking plant, Saratov; four units, yearly capacity 600,000 tons, total output of gasoline in 1935, 90,000 tons—third quarter.

One cracking plant, Grozny; four units, yearly capacity 600,000 tons, total output of gasoline in 1935, 125,000 tons—two units in second quarter (in operation) and two units in third quarter.

One cracking plant, Baku; four units, yearly capacity, 480,000 tons, total output of gasoline in 1935, 24,000 tons—fourth quarter.

One cracking plant, Khabarovsk; one unit, capacity 200,000 tons, total output of gasoline in 1935, 39,000 tons—third quarter.

One cracking plant, Yaroslavl; one unit, total yearly output of kerosene, 24,000 tons (experimental plant)—fourth quarter.

Oil stills, Baku; two units, capacity 2,000,000 tons, output in 1935, 125,000 tons of kerosene—third quarter.

Oil stills, Baku; three units, capacity 3,000,000 tons—fourth quarter.

Stills for production of aircraft fuel oil at Yaroslavl; one unit, yearly capacity 120,000 tons—third quarter.

Oil refining plants, Orsk; one unit, yearly capacity 500,000 tons to be installed in November.

Oil pipe line, Kaspy-Orsk; yearly capacity 500,000 tons to be installed in November.

Main oil pipe line, Loschagel-Magistral; capacity 500,000 tons—fourth quarter.

Oil pipe line, Makhach-Kala-Grozny; yearly capacity 1,500,000 tons—third quarter.

It is scheduled to put into operation in 1935 the following oil wells:

Location—	No. of wells
Total	1,292
To include:	
Azneft	882
Grozneft	204
Embaneft	30
Maineft	54
Vostokneft	36
Sredazneft	29
Sakhlineft	45

Recent reports indicate that much of this work has been completed and the remainder will be in operation the first quarter of 1936. Most of the refinery equipment listed is of Russian design and has been installed by Russian engineers. The additional pipe line facilities are badly needed and when completed will enable the producing branch to increase output in certain fields. The drilling program of at least two trusts is lagging behind the program.

Deliveries will start this month on the most important outside refinery contract placed by the Russians this year. The contract for the plant was placed with the Alco Products Co., Inc., last summer and it expected that by the end of 1936 the plant will be ready to operate. Delivery of equipment and construction will be slow due to the isolated location of the new plant.

The equipment was purchased for Vostokneft (Eastern Oil Trust) and will be installed at Ufa, Bashkirian Republic in the Southern Urals. The plant will refine with crude from the Steritamak field. This field was discovered several years ago but it was only recently that efforts were made to develop the production in commercial quantities. The new plant will supply products for a large inland area. The field is about 1,500 miles northeast of the older fields at Baku and Grozny. The plant will have four main units—atmospheric and vacuum distillation, reforming, gas oil cracking and acid treating. Special treating equipment will be necessary due to the characteristics of the crude oil. The plant will have a crude oil capacity of 12,000 bbls. daily. Provision was made to increase this capacity.

AUSTRIA

Musil & Co.'s well Prinzendorf I has resumed drilling. Raky-Danubia continues to produce from Gosting I, by deep pumping, from 2 to 3 tons daily. Work has begun on shifting the outfit from Gosting III to the Windisch-Baumgarten borehole. Raky-Danubia has transferred part of its oil rights to the Roholgewinnungs A.G. and has been entrusted by the latter with the drilling of its wells. The new drilling location, which lies south of Gosting I, is already selected. Drilling will be done with a rotary outfit of the most modern type.

The borehole E.II of the Eurogasco at Enzersdorf is 1,494 meters deep. The new borehole in Gorgetek (Hungary) has reached 450 meters.

◆ ◆ ◆

Laying a pipe line across the Ural River near Orsk. The first section of this pipe line now being completed extends from Guryev on the Caspian Sea to Orek, Kazakstan. The total length of the pipe line is approximately 450 miles. There are 11 pumping stations on the line, 33 storage tanks ranging from 7,000 to 35,000 bbls. capacity each and about 700 miles of telephone and telegraph lines. The pipe line pumps will be propelled by diesel engines. The first unit will have a capacity of 10,000 bls. daily. Later the capacity will be increased to 30,000 bbls. daily

(Sovfoto)

England to Be Scene of Wildcatting; Exploration Permits to Be Issued

The United Kingdom in 1936 according to present plans will be one of the most active wildcat exploration territories in the entire world. Over the past month plans were definitely completed to start drilling on permits granted by the secretary for mines early next year. Plans looking toward drilling campaigns in the United Kingdom started in 1934 when the petroleum production act was passed by parliament by which all oil rights were taken over by the crown. This was followed early this year by the petroleum production regulations and rules were announced covering issuance of prospecting permits. Applications were made for a large number of permits.

The only permits granted so far are those to the D' Arcy Exploration Co., subsidiary of the Anglo-Iranian Co., Ltd. This company has been granted 30 permits scattered over a wide area and totaling better than 5,000 acres. The parent company is 50 per cent owned by the government and it has been assumed that the company would be given preference in the issuance of permits. There are a number of applications from other companies and operators pending, including concerns not controlled by English capital. It is understood that some of these permits will be granted so that several operators will participate in the program to determine finally whether there is commercial oil production in the United Kingdom.

In announcing its plans to carry on exploration work the Anglo-Iranian Oil Co., Ltd., issued the following statement: "The Anglo-Iranian Oil Co., after weighing the scientific evidence collected by its geologists regarding the possibility of the existence in the United Kingdom of conditions favorable for the accumulation of petroleum, has decided that there is a sufficient case to justify investigation by test drilling, in addition to further prolonged geological and geophysical work.

"The geological conditions, in so far as they are at present known, do not suggest extensive deposits but it recognized that a special value would attach to indigenous oil, even if discovery was limited to relatively small commercial quantities. The drill alone can determine whether or not such deposits do, in fact, exist.

"Actual operations will be carried out by the D'Arcy Exploration Co., a wholly owned subsidiary which normally undertakes exploratory work on behalf of the parent company.

"The company has acquired licenses over a number of areas and will commence its operations by drilling in the south of England. In certain other districts much detailed geological and geophysical survey work remains to be undertaken and a decision as to whether drilling is there justified will depend on the results of such work."

UNITED KINGDOM

The statement of the Anglo-Iranian company reflects views of other operators familiar with geological conditions in the United Kingdom, who have also checked the results of tests drilled several years ago. The tests drilled never showed sustained production although one located at Hardstoft near Chesterland was listed as a producing well. Favorable showings were said to have been obtained in other tests.

Geologists have condemned the entire area so far as formations having large oil producing possibilities are concerned but as indicated in the Anglo-Iranian statement it is believed with modern geophysical instruments and geological data coupled with specially designed drilling equipment, it will be possible to discover and develop commercially, small oil bearing formations.

The D'Arcy permits cover such a wide territory that the company will do additional geological work before starting drilling tests in some sections covered by its permits. It is understood that the company has purchased drilling equipment and deliveries have already been made. It is reported in England that the parent company has allocated up to $5,000,000 to carry on geological investigations and drilling over a period of several years if necessary. The company's 30 permits are located in the following 12 counties: Hampshire, Surrey, Sussex, Dorset, Wiltshire, Yorkshire, Lincolnshire, Nottinghamshire, Leicestershire, Rutland, Cambridgeshire and Norfolk. Most of the permits granted are for areas of from 100 to 200 square miles. It has been announced that in the granting of the permits the government will take all precautions possible to protect investors from wildcat promotion schemes. No governmental subsidies are involved in the exploratory work to be carried on by those who secure permits. If production is found certain advantages will accrue to the domestic production over imported petroleum products, some of which carry high duties.

The objective of those who carry on the drilling operations will be to supply part of the world's most important oil market with the exception of the United States and the U.S.S.R. The latter countries have their own oil supplies while the United Kingdom with the exception of a small shale oil production is entirely dependent on imported crude oil and refinery products. These imports in 1935 will total more than 80,000,000 bbls. and their value as determined by the government will be approximately $170,000,000. These figures indicate the possible market for domestic crude oil production in the United Kingdom.

The following Table 1 shows the imports of crude oil and refinery products into the United

Standard Vacuum Oil Co. Expands Its Refining Facilities in the Far East

Battery of cracking stills at Palembang, Sumatra, refinery of N.K.P.M., Standard Vacuum subsidiary. Site for new furnace in foreground

FOR SAFETY AND FOR Successful Results THESE PRACTICAL AND

BAKER CEMENT EQUIPMENT

The internal plug and valve of all "floating" units of Baker Cement Guiding, Floating and Cementing Equipment are made entirely of Baker-Formula Concrete and Bakelite. No metal ever is used,—only materials which drill out, drill up and are then circulated out of the hole with the rotary mud. No danger exists for further safe, straight drilling—nothing is left on bottom to prevent coring directly below the shoe.

1. Baker Cement Float Shoes have complete Drillability as described above, and possess Strength beyond the collapsing strength of the casing. They contain a buoyant Bakelite ball valve which will float in mud fluid, and upon the slightest back pressure forms a tight double seal against a rubber ring recessed in the Bakelite valve seat.

2. Baker Cement Float Collars are placed a joint or two above bottom to stop the cementing plug and retain the cement tailings inside the casing. A better consistency of cement is thus distributed outside the shoe and casing. The combination of a cement float collar and cement guide shoe is generally used. In deep wells, two cement float collars and a guide shoe, or a cement float shoe and a cement float collar provide maximum safety.

3. Baker Cement Whirler Shoes serve as a casing guide, a cementing shoe and a float. They are identical in design to the Baker Cement Float Shoe except that a number of side circulation holes lead out from the valve chamber below the valve seat, in addition to the bottom circulation hole. These holes, or ports, are "baffled" by means of plates set in grooves which are cut at an upward angle. The greater outlet area and the manner in which the fluid is diverted and directed around the shoe, insure complete distribution of cement and minimize "channelling."

4. Baker Whirler Cementing Collar. Placed in the string between screen pipe and casing, this unit provides the most efficient means of cementing a combination string, or cementing at any depth. The side outlets and internal construction are similar to the Baker Cement Whirler Shoe, except that a second inverted valve assembly closes and forces cement through the side ports when pump pressure is applied. The canvas basket acts as an outside packer to keep cement away from the oil sand and to catch cavings which help in packing off.

5. Baker Cement Guide Shoe. Consists of a plain Casing Shoe equipped with a Guide made of Baker-Formula Concrete. Possesses all the advantages of Baker Drillability described above.

1. Baker Cement Float Shoe

2. Baker Cement Float Collar

3. Baker Cement Whirler Shoe

4. Baker Cement Whirler Collar With Basket (also furnished without Basket)

5. Baker Cement Guide Casing Shoe

BAKER MODEL F CEMENT RETAINER AND CIRCULATION JAR

6. Used also as a Casing Bridge Plug. As a Cement Retainer this efficient device provides for placement of cement in a well, under pressure, through tubing or drill pipe. It can be set at any desired depth in the well, and is widely used for Re-Cementing, Series Cementing, Cementing Behind Sections of Pipe, Plugging-off Bottom Water or Plugging-back to Upper Zones, and for many kinds of Well Repair Work.

When used as a Casing Bridge Plug this tool is set at any point in the casing or liner and prevents movement of fluid either up or down the well. It functions as either a permanent or temporary plug, the cast iron construction being drilled out when operations are completed.

A complete treatise on this profit-making device will be sent upon your request.

8. Baker Model F Cement Retainer

9. Baker Rotary Core Barrel

6. Baker Cable Tool Core Barrel

BAKER ROTARY CORE BARREL

9. Better cores, greater percentage of core recovery, and the ability to cut fast, full-gage hole are outstanding features of this successful tool. The Inner, or core-retaining, tube is suspended by a ball-bearing swivel and remains stationary with the core while the drilling barrel revolves. Cores cannot be burned, ground up or distorted.

BAKER CABLE TOOL CORE BARREL

6. A core drill for use with standard cable tools. The inner core-retaining tube rests on the formation on the bottom of the hole, while the longer outer drill barrel drills the formation to full gage of hole. Fluid enters the outer barrel on the upstroke through ports and a valve. The valves in both the drill barrel head and the core-retaining tube head close on the downstroke, thus producing a hydraulic effect. The fluid passes between the inner and outer barrel, and out into the formation through the drill shoe. Always secures excellent core recoveries.

Look in your COMPOSITE CATALOG for complete descriptions

BAKER

You can rely upon DEPENDABLE TOOLS!

BAKER ROTARY HYDRAULIC EXPANSION WALL SCRAPER

10. Many operations heretofore impossible or unsafe are successfully accomplished with this dependable underreaming tool. It is safe to use, and is extremely practical for,—Scraping the sheath of mud from the oil sand to bring in the well easier and to enlarge the area of productive oil sand; Enlarging the hole to provide proper clearance for liners; Scraping formations before cementing; Increasing the diameter of the hole around the shoe joint and at the same time exposing new formation for better bonding of the cement.

7. Baker Bakwik Drill Pipe Float

10. Baker Rotary Wall Scraper

14. Baker Alloy Cement Dump Bailer Bottom

7. Lifting out threadless Valve Assembly from Bakwik Drill Pipe Float

BAKER BAKWIK DRILL PIPE FLOAT

7. Provides many advantages, such as relieving weight on derrick, rig equipment, lines, brakes; minimizing damage which might result in case of a parted drilling string and preventing the plugging of drill bits. This special joint, which is placed between rotary tool joints, contains a back-pressure valve assembly fitted within the body and held in place by the tool joint pin, without the use of threads or any interconnecting members. The valve assembly can, therefore, be removed and replaced quickly and easily without tools —a feature of great practical importance. It is made to fit both A.P.I. Regular and Full Hole tool joints; other joints on order.

11. Baker Pattern Casing Shoe

BAKER YUNGLING SPIRAL GUIDE

12. This tool is used to straighten up parted pipe in the hole and guide any preferred type of fishing tool over the top of the fish. It is ideal for running in combination with an overshot to engage drill pipe which has twisted-off and is resting against the wall of a cave-in out of reach of an overshot or spear.

Be sure you specify the "Baker-Yungling" Guide which is made of special alloy steel, and will maintain its shape and operate successfully without repairs.

BAKER ROTARY WALL HOOK

13. Operation of this successful fishing tool is not limited by the size of the casing or open hole, due to the hydraulic expansion of the hook to any desired position within its range. The hook is extended by pump pressure acting on a piston, and remains in expanded position as long as pump pressure is maintained. Upon release of pump pressure, the hook returns to vertical position and is readily removed from the hole.

Heretofore the ordinary wall hook has been used only as a last resort—today you can safely use the Baker Rotary Wall Hook wherever and whenever its use appears desirable.

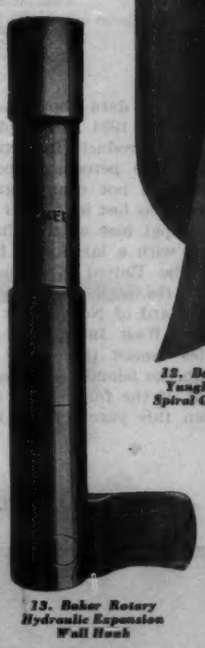
BAKER ALLOY CEMENT DUMP BAILER
Bottom and Top Joint

14. This Cement Dump Bailer is made of alloy, heat-treated steel and will withstand service in deep wells when operated with high speed equipment.

It has no chains, latches, springs or plunger bottom. Locking and tripping operations are secured with a sliding sleeve having a bottom vent and using fluid resistance against the valve to prevent premature dumping.

The guide shaped bottom prevents hanging-up and dumping is always under control of the operator.

12. Baker Yungling Spiral Guide



13. Baker Rotary Hydraulic Expansion Wall Hook

BAKER PATTERN CASING SHOE

11. This Casing Shoe is used in cable tool drilled wells. The hard, tapered chisel teeth around the bottom of the casing shoe serve to cut off a portion of the wall of the hole so that the casing will follow freely. High quality special steel, correct heat treatment and careful construction of the Baker Pattern Casing Shoe are necessary to secure high efficiency and exacting performance. Extremely close tolerance specifications are followed for exterior taper, dimensions and spacing of cutting teeth. Always specify "Baker Made."

See Your 1936 Composite Catalog

for specifications and complete descriptions of all Baker Oil Tools, or write us for the Baker Catalog.

Write us, in your own language for suggestions as to how Baker Oil Tools will make your operations safer and more profitable.

Use Tools!

Kingdom for the first 10 months of 1935 and 1934: (data given in imperial gallons and American barrels per day)

	1935	1934
Crude oil	428,197,000	400,863,000
Barrels daily	40,200	37,600
Gasoline	1,052,515,000	946,407,000
Barrels daily	98,900	88,900
Fuel oil	552,079,000	534,498,000
Barrels daily	51,800	50,200
Kerosene	150,107,000	182,836,000
Barrels daily	14,100	17,200
Gas oil	86,295,000	113,469,000
Barrels daily	8,100	10,700
Lubricating oil	83,295,000	89,077,000
Barrels daily	7,300	8,300
Miscellaneous oils	13,861,000	18,429,000
Barrels daily	1,300	1,700
Total	2,366,620,000	2,285,459,000
Barrels daily	222,400	214,500

This table shows indications that the demand for crude oil and refinery products is increasing this year with the exception of kerosene, gas oil and lubricating oil. Another report of the Board of Trade which subtracts from the imports the exports of the United Kingdom, indicates that for the first nine months of this year the gain in consumption of petroleum products amounted to 4.5 per cent. If this same increase continued over the last quarter a new peak will be established in the consumption of petroleum products due largely to the gain in motor fuel demand.

The following Table 2 shows the principal suppliers of crude oil and refinery products for the first 10 months of 1935 and 1934:

REFINERY PRODUCTS

	1935	Pct. of total	1934	Pct. of total
Neth. W. Indies	712,185,000	36.7	694,921,000	36.8
Barrels daily	66,900		65,300	
Iran	377,132,000	19.4	315,629,000	16.7
Barrels daily	35,400		29,600	
United States	235,436,000	12.2	276,777,000	14.6
Barrels daily	25,000		26,000	
Mexico	153,954,000	7.9	136,898,000	7.2
Barrels daily	14,400		12,800	
Rumania	127,556,000	6.6	155,744,000	8.2
Barrels daily	11,900		14,600	
Total		82.9		82.5

CRUDE OIL

Iraq	127,645,000	29.7		
Mexico	87,588,000	20.4	101,717,000	25.3
Iran	75,681,000	17.7	187,618,000	46.7
Peru	61,127,000	14.3	69,703,000	17.3
Venezuela	26,237,000	6.1	3,060,000	.7
Total		88.2		90.0

These data show that five countries in both 1935 and 1934 furnished over 80 per cent of the refined products imported into the United Kingdom. The percentage position of the five countries did not change greatly with Iran gaining what was lost by United States and Rumania. The principal loss of the United States was in kerosene with a large gain in gasoline shipments.

The United Kingdom for several years has been the most important outlet of the Shell and Standard of New Jersey refineries in the Netherlands West Indies. The imports from the refineries consist principally of gasoline and fuel oil with the island refineries furnishing about 40 per cent of the former and 50 per cent of the latter. Iran this year jumped to the lead in furnishing kerosene, the place held last year by the United States.

The United States this year as last furnished more than 50 per cent of the lubricating oil sold in the United Kingdom with Russia second. It is expected that this export outlet for these two countries will decrease in importance next year due to the construction of at least two additional lubricating oil plants in the United Kingdom. In fuel oil, Iran is second to the Netherlands West Indies as a source of supply and Mexico is third. Rumania increased her fuel oil shipments to the United Kingdom this year.

In the importation of crude oil the advent of Iraq as a major source of supply was the principal development of the year. Crude shipments from Iraq started the latter part of 1934 and at this time according to the latest available information constitute over 30 per cent of the total crude oil imports. Iraq's gain has had to be offset by decreases from other countries as the increase in crude oil runs to stills this year over last has only been around 3,000 bbls. daily. Most of the loss in crude market was sustained by Iran. The Anglo-Iranian Oil Co., Ltd., whose subsidiaries are the most important refiners in the United Kingdom reduced its crude shipments from Iran in order to provide outlets for the new Iraq supply of which it is part owner. Crude oil imports from Venezuela have increased this year.

In addition to the principal products enumerated above the United Kingdom is a large importer of petroleum by-products and specialties of which wax is the most important. Wax imports increased 15 per cent the first 10 months of this year and totaled 102,000,000 pounds for that period. Of that total over 50 per cent was furnished by the United States wih British India and Poland second and third respectively.

Drilling Among the Palms in Cuba

Well No. 3, of the Naftalifera "Rosario," at the Motembo Valle field, drilled with a Fort Worth spudder under George McLoney at the rate of 5 feet per hour. The well is on the "Vesuvius" lease of the Motembo Consolidated Co. field, in operation for six months. Two producers have been drilled. Four other wells are being drilled at present. Dr. Arturo Macarri is general manager and vice president of the operating company

Oil-Company Care for Health of Workers

Ward of hospital which is maintained by Tropical Oil Co. in El Centro field of Colombia

For detailed information on these new valves write for Circular No. 598.

New LUNKENHEIMER VALVES

for Oil Well Drilling Operations and High Pressure Gas, Oil and Hydraulic Service

BRONZE VALVES (Screw Ends)

350 lb. SP- 550° F.
1000 lb. GLP-150° F.

Fig. 1878 Globe
Renewable "NT4" Nickel Alloy Seat and Disc
Union Bonnet

Fig. 1879 Lift Check
Renewable Bronze Disc
Integral Seat

Fig. 1880 Swing Check
Renewable Bronze Disc
and side Plugs

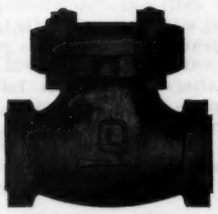
Fig. 1881 Gate
Renewable "NT4" Nickel Alloy
Seats and Disc

STEEL VALVES (Screw and Flange Ends)

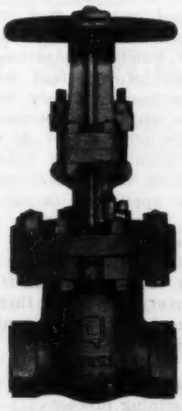
350 lb. SP-580° F. (Basic Rating 300 lb. SP-750° F.)

Globe
Fig. 1872 Screw Ends
Fig. 1600 Flange Ends
Renewable Stainless Steel Stem and Disc
Nickel Alloy Seat Ring

Angle
Fig. 1873 Screw Ends
Fig. 1601 Flange Ends
Renewable Stainless Steel Stem and Disc
Nickel Alloy Seat Ring



Swing Check
Fig 1490 Screw Ends
Fig. 1491 Flange Ends
Renewable Stainless Steel Disc
Nickel Alloy Seat Ring



Gate
Fig. 1869 Screw Ends
Fig. 1498 Flange Ends
Renewable Stainless Steel Stem and Disc
Nickel Alloy Seat Rings

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Iraq 1935 Output 25,000,000 Bbls.; Ranking Eighth Among Countries

The first full year of oil operations in Iraq during which crude oil was made available by pipe line to outside markets, has brought a large increase in production so that with an estimated output of 25,000,000 bbls. for 1935, the country ranks eight among the oil countries. The latest available data covering operations of the Iraq Petroleum Co., Ltd., which has practically all of the Iraq oil made available to outside markets clearly shows this growth.

In 1934 the company's crude oil production totaled 962,611 British tons. Based on a conversion factor of 7.46 bbls. per ton, this production averaged approximately 20,000 bbls. daily. For the first 10 months of 1935 the company's production in the Kirkuk field jumped to 2,927,920 tons or 71,850 American barrels daily. The company started making deliveries at the Tripoli, Syria, terminal of its pipe line in August, 1934, and near the end of the year the line to Haifa in Palestine, the other leg of the largest pipe line system outside the United States, was completed. The pipe line deliveries in 1934 totaled only 607,435 tons or approximately 13,000 bbls. daily.

With the start of 1935 both legs of the line were in operation and deliveries steadily increased and for short periods the pipe line has been operating near capacity which is at the rate of 4,000,000 tons yearly or 80,000 bbls. daily. For the first 10 months of 1935 the shipments from Haifa and Tripoli terminals totaled 2,810,330 tons or approximately 69,000 bbls. daily.

It is this oil which has been placed on world oil markets this year. The fear that this large quantity of new oil would upset established markets, especially in Europe has not been borne out by actual developments. Due both to an increase in demand and the fact that exports from certain other countries decreased the new production for which preparations were made one to two years before actual deliveries has been absorbed without seriously disturbing existing refinery or marketing operations.

Shortly after the crude was available in substantial quantities last year it became apparent that due to its unusual properties the refining processes applicable to sweet crudes could not be used. As pointed out by one observor Iraq oil has presented a continuous problem. Many years of negotiation for concessions preceded the actual discovery of oil in 1927 in the Kirkuk field. After the discovery of the oil there was still the problem of making the oil available to markets. A $50,000,000 pipe line system through a desert and sparsely populated country was necessary before this problem was solved. It is now conceded that special refining processing will be necessary before the problem of Iraq can be said to be finally solved.

The objectionable features originate in sulfur compounds found in the crude. This includes hydrogen sulfide gas which is hazardous to employes in plant operation and objectionable in the immediate territory of the plant as an odor. A representative test of the Iraq crude shows an A.P.I. gravity of 35.5 A.P.I. with sulfur content of 2 per cent. In topping operation taking 400 endpoint the yield is 27 per cent with an octane rating around 50.

The odor of hydrogen sulfide gas appears to be the most immediate problem. One refinery in France operating with the crude was shut down for a time due to the objections made by residents living near the plant. There is the additional fact that the crude is highly corrosive to refinery equipment due to the sulfur compounds, both in the atmospheric and high-pressure distillation operations. Some trouble was experienced in treating the gasoline and other cuts from the crude but this problem it is said has been solved. The SO_2 solvent process is being used in treating kerosene or lubricating cuts by at least three refiners.

Tripoli terminal of Iraq line

IRAQ

The low octane value of the straightrun gasoline has been reflected in refinery construction work over the past year. Considerable reforming equipment to handle the naphtha cuts has either been installed or is under construction at this time. While high in sulfur content the residual product from the refinery operation is marketable as bunker and industrial fuel.

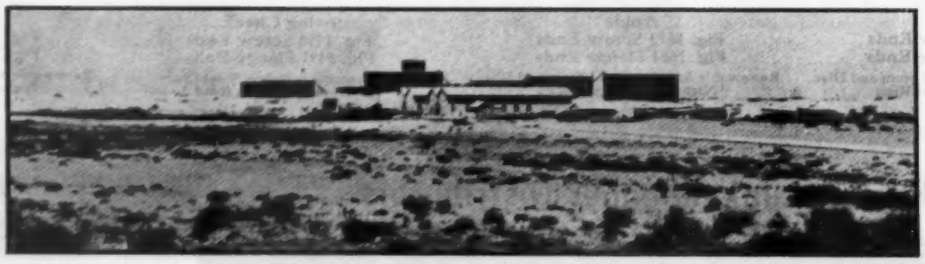
The Iraq company now has under construction a stabilizing unit in the Kirkuk field near Hassar the point of origin for all crude tendered to the pipe line. It is expected that this unit will simplify the sulfur problem in refining and probably do away entirely with the hydrogen sulfide gas. This plant which will be ready to operate next fall will have a capacity of approximately 100,000 bbls. daily. The crude from the field storage will be brought to temperature sufficient to drive off the fixed gases including the hydrogen sulfide gas along with a small yield of light gasoline. The latter will be treated and can be returned to the crude. It has been reported that in this stabilizing operation the crude will also be given a chemical treatment for the purpose of removing part of the objectionable sulfur. At least two refiners at this time are giving the crude a soda treatment previous to the start of the refinery operation. This is said to have aided in minimizing the gas problem and also reduced corrosion troubles.

Those familiar with conditions state that the refining problem is not serious and will add little to the overall cost of making suitable products for marketing. The situation has been compared to that confronting the first refiners of certain high sulfur crudes in West Texas including the sour crudes of the Texas Panhandle which carry a large volume of hydrogen sulfide gas.

The bulk of the Iraq crude oil is going to French refineries and will continue to do so. Smaller quantities have been shipped to plants in Great Britain, Italy and other countries. The plan of operation calls for the division of the crude oil to the four interests which own the Iraq Petroleum Co., Ltd.

There have been no developments of special interest reported in the field operations of the Iraq company. The company has carried on geological work in other parts of its concession which includes a total of 32,000 square miles located in the vilayets of Baghdad and Mosul, and it is understood that promising structures are to be tested. The present known Kirkuk structure which is only partially developed has been variously estimated as to reserves with several in excess of 1,000,000 bbls.

The Mosul Oilfields, Ltd., successor to the British Oil Development Co., which has a large concession in Iraq, has been carrying on drilling operations during the year and has also continued geological work. This company's concession is west of the Tigris River and north of the thirty-third parallel. The production so far obtained is of low gravity and not sufficient either as to quality or quantity to justify the construction of a pipe line to Alexandretta which is part of the project provided the necessary oil is discovered.



Haifa terminal of Iraq pipe line

MILLED GROOVE SCREEN

The Milled Groove perforations give greater inlet flow and individual hole production. They also provide a cushion for the fluid, after it passes through the wires. This individuality of each opening distributes the pressure over the entire screen, eliminating cutting effect on the wires. The Milled Grooves direct the fluid to the drilled hole and to prevent it from flowing up or down the pipe.

Layne Milled Groove Screen is wrapped with a special shaped wire which is narrower at the pipe than on the outside. This makes the openings between the wires flare out towards the perforations. This type of opening—offers a freer passage-way for the fluid after it leaves the screening point of the wires. It eliminates clogging, as particles cannot lodge between the wires.

The wire on Layne Screen is wrapped directly onto the pipe, under pressure, and with proper tension, assuring a more uniform gauge.

The Layne Milled Groove Screen has withstood the test of time and performance under every type of condition. It will give you years of care-free trouble-free service.

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HOUSTON, TEXAS, U. S. A.

The Layne-New York Co., 92 Liberty St., New York

Vickers Ltd. London, England

The Layne & Bowler Corp., Los Angeles, Calif.

Mexican Output Exceeding Last Year; Official Review of Present Situation

By BUREAU OF PETROLEUM
Mexican Department of National Economy

The position of Mexico in world production has been maintained in recent years, and will be preserved till the end of the present year. It will be numbered among the nations which will augment their production. Confirming our predictions, that the production of Mexico in the present year will exceed that of last year, is the following table:

Year	Crude oil production—Cu. meters	Crude oil production—Barrels
1931	5,252,600	33,038,853
1932	5,215,500	32,805,496
1933	5,405,537	34,000,330
1934	6,068,672	38,171,946
1935 (probable)	6,400,000	40,000,000

A still more palpable increase is noticed in the activities of refining, in the last five years, in which there has been progressive expansion in elaboration of refined products in the plants established in Mexico.

The following figures show in an eloquent manner what has been this development:

PRODUCTION OF PETROLEUM DERIVATIVES IN THE MEXICAN REFINERIES

Year	Cu. meters	Barrels
1931	3,546,648	22,308,416
1932	3,805,200	23,934,708
1933	4,671,673	29,384,523
1934	5,934,998	37,331,137
1935 (probable)	5,700,000	35,600,000

The decrease which is noted in the present year is merely incidental and due to the fact that for four months (February to May), the refinery of the Huasteca Petroleum Co. was closed while the working conditions of the employes were being defined in the aforesaid plant simultaneously with the expansion of their activities, the refineries have been improving their equipment, in order to likewise better the quality of its products as well as their yield.

It is interesting to note that the refineries established in Mexico rank among the largest in the world, and that in their capacity are surpassed alone by some of those of the U.S.A., by a few of Russia, by the Dutch-Shell in Curacao, by that of the Standard on the Island of Aruba (both in the Caribbean) and by that of the Anglo-Persian in Iran (Persia).

Equally significant we consider the increase of our consumption of petroleum products, immediate consequence of the evident economic betterment of our country, and a result of the policy which the Mexican administration has been promoting to favor the agricultural and industrial development of Mexico and the expansion of our ways of communication. The comparison of our consumption in the last five years, with that to which we are referring, is the following.

Year	Petroleum derivatives consumed—Cu. meters	Petroleum derivatives consumed—Barrels
1931	2,239,945	14,089,289
1932	2,174,851	13,679,811
1933	2,132,921	13,416,073
1934	2,595,977	16,265,795
1935 (probable)	2,800,000	17,000,000

In its consumption requires special mention that of gasoline, a factor evermore important in the life of our country, and vital to our means of communication, to the maintenance and expansion of which, it is intimately connected, now that to a greater fiscal income through consumption of gasoline, correspond greater possibilities for the conservation of roads in the same manner the good condition of these and the opening of new roads, produces immediately increase of consumption. Thus, we see that from 1925 in which year was created a tax on the consumption of gasoline, destined exclusively for construction and conservation of roadways in Mexico the consumption of gasoline has increased so that while in the cited year 1925, the total consumption was 141,294,668 liters in the past five years, the consumption has been as follows:

	Liters
1931	272,202,326
1932	269,815,894
1933	260,035,302
1934	313,120,740
1935 (probable)	350,000,000

The Mexican government, realizing the importance to the country of the expansion and conservation of highways has scrupulously dedicated to that end the entire revenue derived from the consumption of gasoline, and not only that, but it has added large sums of its general revenue, in

MEXICO

order to conserve upon an uninterrupted basis of activity, the construction and conservation of these highways.

Likewise, it has discouraged any speculation with this product, considered throughout the world as a prime necessity. Therefore, in accordance with the Reglamentary Law of Art. 28 of the constitution, were studied conscientiously the conditions of production and distribution of gasoline in Mexico, the decree fixing the maximum selling price of gasoline having been dictated in September last, a price considered reasonable for producer and consumer, and it was resolved for the next year, to sacrifice a part of the revenue from the consumption of gasoline reducing the tax proportionately so as not to hinder the ample program of construction of roadways.

Referring to our petroleum exportations, we note that they have not followed a regular course in the past five years. This is undoubtedly due to the critical conditions and economic incertitude which prevailed throughout the world; and which was prolonged in various countries until the middle of 1934. The following table shows the amount of exportation for the period mentioned:

Year	Exportation of petroleum products—Cu. meters	Exportation of petroleum products—Barrels
1931	3,577,621	22,503,233
1932	3,591,119	22,588,137
1933	3,501,768	22,026,131
1934	3,977,453	25,013,181
1935 (probable)	3,700,000	23,500,000

Possibly the figures we have calculated as total for 1935 will be exceeded at the end of the year, since there has been an unaccustomed activity in our petroleum ports due to the shipments of petroleum derivatives, the majority of which are bound to Europe. This activity will undoubtedly increase rather than decrease what has been stipulated for the year, due to the preparations for war and preventive measures which the great European powers are rapidly adopting, and in which petroleum figures of prime importance.

Production and value of crude petroleum in Mexico for the first 10 months of 1935:

Months	Barrels	Value pesos
January	2,894,167	9,875,532
February	2,661,632	9,102,407
March	3,519,154	12,026,345
April	3,120,035	10,693,059
May	3,529,659	12,068,976
June	3,455,022	11,805,645
July	3,573,632	12,203,474
August	3,570,908	12,194,727
September	3,442,259	11,741,122
October	3,461,457	11,793,291
Total	33,227,925	113,503,488

Productive and dry wells drilled in Mexico the first 10 months of 1935:

Months—	No. of wells	Initial output (bbls.)	Dry wells	Total
January	3	679	5	8
February	5	3,057	6	11
March	5	7,265	6	11
April	2	2,724	11	13
May	7	4,969	1	8
June	2	327	2	4
July	2	2,579	4	6
August	3	2,453	2	5
September	2	2,837	1	3
October	..	....	2	2
Total	31	26,890	40	71

Table showing by fields number of producing wells drilled and dry holes abandoned the first 11 months of 1935 in Mexico.

Companies—	Producing wells—Number	Producing wells—Initial output daily (bbls.)	Dry holes	Total
Gral. Bravo, N.L.	1	Gas	..	1
Lampazos, N.L.	..	....	1	1
El Zacate, N.L.	..	....	1	1
Reynosa, Tamps.	..	....	1	1
Camargo, Tamps.	..	....	1	1
Aldama, Tamps.	..	....	1	1
Altamira, Tamps.	..	....	2	2
Santa Juana,	..	....	1	1
Cacalilao (Panuco)	8	271	3	11
Panuco (Diversos)	8	1,440	16	24
Acayucan	..	....	1	1
Cerro Viejo	1	302	..	1
Acalapa	1	32	..	1
Rodriguez Clara	..	....	1	1
Arroyo Blanco	..	....	1	1
Tonala, Tigre	..	....	1	1
Poza Rica	4	8,730	1	5
El Plan	8	17,486	2	10
Palo Blanco	1	101	..	1
El Burro	..	....	5	5
Huimanguillo, Tab.	..	....	1	1
Total	32	28,362	40	72

Table showing by companies number of producing wells drilled and dry holes abandoned the first 11 months of 1935 in Mexico.

Companies—	Number-ber	Initial output daily	dry holes	Total
Aguila El Cia. Mexicana de Petroleo, S.A.	12	23,977	12	24
Aldamas y Bravo, S.A.	..	....	1	1
Beckley y Socios	..	....	1	1
Control de Admon del Petroleo Nacional	..	....	1	1
Consolidated Oil Co. of Mexico, S.A.	1	Gas	..	1
Charro El. Cia. Petr.	..	....	1	1
Gulf Coast Corp.	3	114	..	3
Hamilton y Devine	..	....	2	2
International Petr. Co.	..	....	3	3
Imperio Cia. Mex. de Oleoductos	3	82	2	5
Jonker P. J., S. en C.	1	57	..	1
Kern Mex. Oilfields	1	12	..	1
Maza Francisco y Luz E. de Maza.	1	94	..	1
Mexican Petroleum Co.	6	1,333	11	17
Mexican Gulf Oil Co.	..	....	1	1
Panuco Maguayes, S.A.	..	....	1	1
Penn Mex. Fuel Co.	1	101	..	1
Richmond Petroleum Co.	1	32	..	1
R. de la Pena y Roman Lopez Filigrana	..	....	1	1
Stanford y Cia	1	2,641	..	1
Southern Fuel & Ref. Co.	1	19	1	2
Tancasneque y Anexas, Cia. Petrolera, S.A.	..	....	2	2
Total	32	28,362	40	72

Products obtained at refineries first nine months of 1935:

Products—	Barrels	Per cent refined
Fuel oil	12,979,561	48.5315
Gas oil	2,346,434	8.8416

(Continued on Next Page)

Unfinished gasoline	1,651,516	6.2231
Finished gasoline	4,323,972	16.2932
Unfinished kerosene	440,973	1.6616
Finished kerosene	892,533	3.3632
Lubricating oil	517,120	1.9486
Unfinished paraffin	142,638	0.5412
Refined paraffine	78,411	0.2955
Asphalt	1,323,095	4.9856
Miscellaneous products	1,122,388	4.2293
Total	25,719,645	96.9144
Loss in refinery	818,888	3.0856
Total refined	26,538,533	100.0000

Crude petroleum and refinery products exported from Mexico during first nine months of 1935:

Months—	Mexican production (bbls.)	Foreign production (bbls.)	Total (bbls.)
January	1,578,664	767	1,579,431
February	1,220,543	6	1,220,549
March	2,149,425	26	2,149,451
April	2,160,470	1309	2,161,779
May	1,650,905	151	1,651,056
June	2,381,564	19	2,381,583
July	1,989,093	...	1,989,093
August	2,165,320	19	2,165,339
September	1,595,358	50	1,595,408
Total	16,891,342	2347	16,893,689

Crude petroleum and refined products consumed in Mexico during first nine months of 1935:

Months—	Bbls.
January	1,252,874
February	1,295,187
March	1,476,005
April	1,424,018
May	1,317,843
June	1,344,443
July	1,370,987
August	1,435,642
September	1,283,858
Total	11,200,857

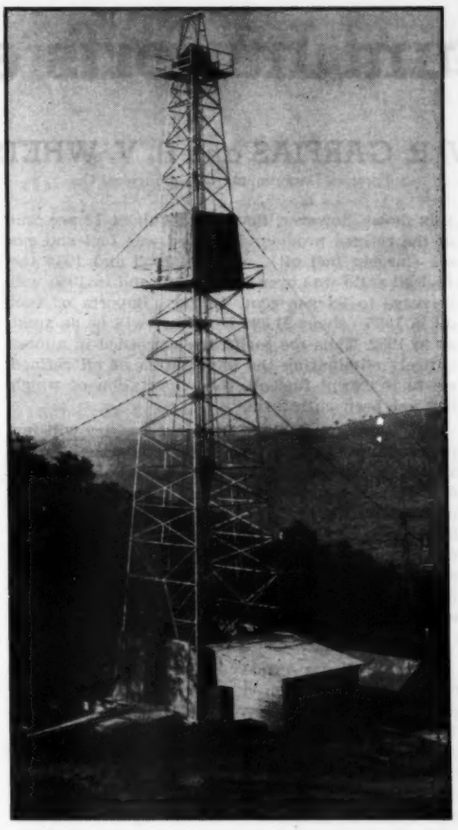
Refineries, natural gasoline and asphalt plants in Mexico:

	No. of plants	Daily capacity (bbls.)
Refinerias completas	4	158,081
Refinerias Primarias	4	152,311
Plantas de aprovechamiento de gases	9	1,302
Plantas experimentales	1	6
Total	18	311,700

Trinidad

The report of Siparia Trinidad Oilfields, Ltd., for the year ended June 30, 1935, shows receipts of £18,453, against £18,577 in 1934. Working expenditure was reduced to £13,543 from £29,852, owing to virtual suspension of drilling.

ITALY



Rotary drilling test of Societa Petrolifera Italiana in Vallezza field of Italy. A portable drilling rig test also used in the field for shallow drilling, is shown in background

The Societa Petrolifera Italiana over the past year has continued the normal development work of its two main fields, Salsomaggiore and Vallezza in Italy. Exploratory drilling to the north of Salsomaggiore has met with a certain measure of success in the neighborhood of Salsominore and several small producing wells have been completed there. The Vallezza field has gradually been extended longitudinally and it is hoped that the productive sands may continue for a considerable distance yet, especially to the north in the direction of Fornovo.

The "wildcat" well at Rile dell' Olio near Voghera is now drilling with cable tools at over 3,000 feet and is about to enter the interesting Oligocene series. Good showings of gas and oil have already been found, and pressures are high. The repressuring of a small part of the Vallezza field has recently been started, and this is the first instance of such an operation being carried out in Italy. Relatively little rotary drilling has been done this year, but several wells will probably be sunk by this means in 1936, if conditions improve.

The company's production of oil has been declining fairly steadily during the past year, and an extensive exploration program has been under way in an attempt to discover deeper producing horizons. This deeper drilling program, however, has met with scant success to date, owing to the very considerable technical difficulties of working with light cable tool rigs and casing at depths of 1,000 metres, of controlling relatively high gas pressure, and shutting off large quantities of salt water. The present general tendency everywhere in northern Italy is to drill to depths in excess of 1,000 metres, and heavier and different equipment is being called for to meet the new conditions. Cable tool drilling to shallow depths with portable equipment is no longer practical, except in a few isolated instances, and rotary tools are in demand almost everywhere.

Unfortunately, the customs importation difficulties from other countries, together with the present European frozen currencies situation, renders the purchase of suitable rotary machinery and production equipment a matter of extreme difficulty. It is hoped, however, that conditions may improve and that tthe local oil industry may again be able to operate on a rational basis.

BAHREIN ISLAND

The Bahrein Petroleum Co. is reported proceeding actively with its plans for the construction of its new 10,000-bbl. refinery on Bahrein Island. The work is to be started soon, and will probably be completed in six months. This perhaps will prove a record for the building of a large refinery on what is almost a barren island, thousands of miles from manufacturing centers, and at least 12,000 miles from the oil company's headquarters.

Constructional work is being carried out by the Standard Oil Co. of California's organization on behalf of its subsidiary—the Bahrein Petroleum Co., Ltd. Already nearly 100 British and American engineers have been sent to Bahrein to take care of the erection and to train and direct native labor. It is possible that another short submarine pipe line will have to be laid to handle the refined products.

Plans call for the erection of a 1,000 kw. power plant, consisting of three 500 b.h.p. diesel engines coupled to 335 kw. generators. In addition, prices are being obtained in Europe and the United States on a 400 b.h.p. slower speed diesel engine for pump operating purposes. The refinery tank farm will consist of 18 floating-roof tanks of 55,000-bbl. capacity each, installed with the usual fire protection equipment.

For several months officials of the California Standard, including F. H. Dittus, chief refinery engineer, have been in Europe, and T. W. Barrington, of the San Francisco purchasing department, is at the London office in charge of buying.

An interesting development of the company's overseas operations is the recent formation in Great Britain of the California Standard Oil Co., Ltd. H. D. Collier has been appointed chairman, the offices being at 6, Lothbury, London, E.C.

Present camp on Bahrein Island

No. 1 well and southeast end of Jebel hill

Analysis of Quantity and Character of Our Petroleum Imports and Exports

By V. R. GARFIAS and R. V. WHETSEL
Foreign Department, Cities Service Co.

From time to time the question of further regulation of imports of foreign crudes and their products arises in the United States, and it is then that the quantity and character of petroleum imports and exports are or should be again thoroughly studied, with the purpose of determining what imports, if any, are actually detrimental to the industry in the United States.

The first curb to petroleum imports occurred in 1933, when the tariff of 21 cents a barrel on crudes and other taxes on certain refined products became effective. The influence of such tariff on the foreign petroleum trade of the United States is shown in the following tables.

Table 1 shows imports of crude and refined products for 1932, before the tariff, and for 1933 to 1935, inclusive, after the tariff. Table 2 covers the same period for exports, and Table 3 gives the excess of exports over imports during the same years. Figures for 1935 are estimated from data available through October. All figures are in thousands of barrels:

TABLE 1—UNITED STATES IMPORTS

	1932	1933	1934	1935
Crudes	44,682	31,893	35,558	32,400
Refined products	29,812	13,501	14,936	21,800
Total	74,494	45,394	50,494	54,200

TABLE 2—UNITED STATES EXPORTS

	1932	1933	1934	1935
Crudes	27,393	36,584	41,127	53,000
Refined products	75,882	70,143	73,380	75,000
Total	103,275	106,627	114,507	128,000

TABLE 3—EXCESS EXPORTS OVER IMPORTS

	1932	1933	1934	1935
Crudes	17,289	4,691	5,569	20,600
Refined products	46,070	56,642	58,444	53,200
Total	28,781	61,333	64,013	73,800

It should be noted that despite a marked increase of consumption in the United States, petroleum imports will be 27.2 per cent less in 1935 than in 1932, which is due almost entirely to the tariff. On the other hand, exports have increased 24.2 per cent over the four years, resulting in an increase of 157 per cent in the favorable balance of exports over imports. Unquestionably the tariff has been effective in curtailing imports to a great extent, but it is necessary to determine what class of crudes and refined products, if any still being imported under the tariff, may require further regulation for the benefit of the American industry.

The importation of refined products into the United States will total close to 21,800,000 bbls. in 1935, compared to 29,800,000 bbls. in 1932, a decrease of 26.8 per cent. Further analysis shows, however, that in 1932 about 72 per cent of the refined products imported was fuel and gas oil (largely fuel oil), while in 1933 and 1934 the fuel oil ratio was over 90 per cent and in 1935 will increase to 98 per cent. In fact, imports of fuel oil in 1935 (about 21,300,000 bbls.) will be as great as in 1932. Thus the tariff has succeeded in almost entirely eliminating the importation of all refined products except fuel oil, the importation of which has not been curtailed.

According to Table 2, foreign countries will import no more refined products from the United States in 1935 than they did in 1932, despite the fact that consumption abroad has increased by 17 per cent during that period. This is due, of course, to the ever-increasing construction programs of refineries abroad. It is therefore reasonable to expect that the United States may not appreciably increase its exports of refined products in the near future.

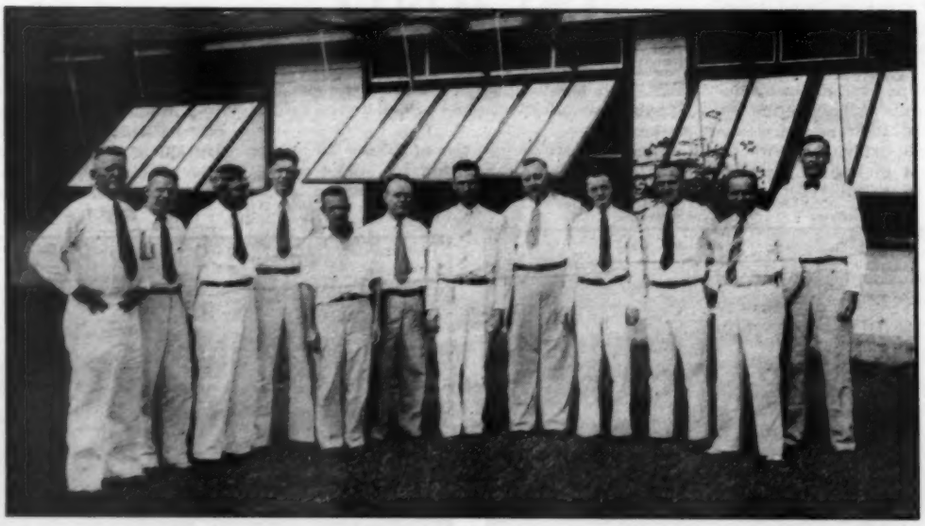
Crude Oil

United States crude oil imports before the tariff in 1932 amounted to 44,682,000 bbls., compared to approximately 32,400,000 bbls. in 1935. The importation of heavy asphaltic crudes, however, has maintained an almost even level during the period, totaling 31,000,000 bbls. in 1932 and 31,200,000 bbls. in 1934. Thus the tariff succeeded in reducing imports of light crudes directly competing with similar crudes in the states, from about 13,000,000 bbls. in 1932 to approximately 4,000,000 bbls. in 1934. Practically all the heavy asphaltic crudes are imported by the Atlantic Seaboard, where a large part is used in the manufacture of asphalt.

Exports of American crudes have increased 96 per cent during the past four years from an unfavorable balance of 17,300,000 bbls. in 1932 to a favorable balance of 20,000,000 bbls. in 1935. Increasing refinery activities abroad, despite the fact that foreign crude production exceeds considerably foreign consumption, now require over 50,000,000 bbls. a year of certain American light crudes for the reason that sufficient foreign light crudes are not economically available at the points where they are needed. For the same reason that the industry within the United States, especially on the Atlantic Seaboard, finds it necessary to import certain amounts of heavy asphaltic crudes from Venezuela and Mexico, despite a tariff of 21 cents a barrel on these crudes.

That no available American crudes can successfully be substituted for these imports has been proven, and unquestionably imports of heavy asphaltic crudes to the Atlantic Seaboard are a vital necessity to that part of the American industry, just as the importation of American light crudes are indispensable to the refining industry in Europe. The United States is undoubtedly now enjoying a very favorable and beneficial balance in the exchange of crude with foreign countries, and any further curtailment of crude imports, would work a hardship on Atlantic Seaboard refineries, without a corresponding benefit to the American petroleum industry as a whole. It might also be added that American crude stocks have been reduced by 35,000,000 bbls. since 1933, hence the importation of certain amount of foreign crude, especially asphaltic crudes can in no way injure the price structure of domestic products.

Officials and Department Heads, Standard of Venezuela



Left to right: J. H. Morris, transportation department; H. S. Young, marine department; C. H. McDuff, drilling department; J. W. Brice, chief geologist; H. A. Beck, CPTO terminal superintendent; G. M. Knebel, assistant general manager; H. E. Linam, manager; L. C. Booker, Caracas representative; J. Kennalley, assistant to manager; O. P. MacLeod, acting chief engineer; R. D. Moriarty, material department; J. A. Holmes, chief petroleum engineer

Metallurgical Dialogue

Books dealing with technical subjects are usually so written as to be difficult for the layman to read easily and it is therefore a novelty to find a book dealing with the metallurgy of iron and steel so written as to present interesting facts on this subject in a manner readily understood by anyone.

Dr. Albert Sauveur, Gordon McKay Professor of Metallurgy at Harvard University, has recently written "Metallurgical Dialogue" as a discussion between himself and a typical Harvard undergraduate covering such topics as Hysteresis, Ferrite, Alloy Steels, Manganese, Creep, Corrosion and allied subjects.

Doctor Sauveur is also the author of "The Metallography of Iron and Steel" used as a standard text-book in many schools and colleges. His new book has been published by the American Society of Metals, 7016 Euclid Avenue, Cleveland, Ohio, and information may be secured by writing W. H. Eisenman, secretary.

Egyptian Single Stage Duo-Purpose Atmospheric and Vacuum Unit

In pursuance of its policy of modernizing the refinery at Suez, the Egyptian government recently installed a single duo-purpose atmospheric and vacuum distilling unit. The Foster-Wheeler unit is designed to operate under atmospheric conditions, running suitable crude oils to fuel oil residues; or under vacuum conditions, running Hurghada residue to asphalt.

When processing crude oil the unit has a capacity of 60 tons (2,240 pounds) per day; gasoline is secured as overhead vapor product; kerosene and gas oil as liquid side streams, and fuel oil as residue. The charge is pumped through a heat exchanger located in the top of the fractionating tower, from which it flows through a residue heat exchanger. It is heated by the residue from the bottom of the tower and then passes directly to the tube still where it is heated to the necessary temperature to secure the required vaporization.

Gasoline is taken as overhead vapor product, and is partially condensed and cooled in the vapor heat exchanger and vapor condenser located in the top of the tower, and finally is an external vapor condenser located outside the tower. From the latter the condensate flows by gravity to a water separator and reflux supply tank. The necessary amount of condensate is pumped back as liquid reflux to the top of the tower and the net yield flows by gravity to storage.

Kerosene and gas oil are secured as liquid side streams from the fractionating tower, each flowing by gravity to an external stripper in which it is treated with superheated steam. From the strippers, each side stream flows by gravity to storage through the cooler provided for that particular sidestream. The residue is pumped from the bottom of the tower, through a heat exchanger to storage.

The specifications of the side streams are closely controlled by patented Foster-Wheeler reflux control valves and external strippers, which control, respectively, the endpoint and the initial boiling point of the products.

When processing residue from the production of asphalt, the unit, working under vacuum, has a capacity of 60 tons per day. The charge is pumped through heat exchangers in the top of the tower and on the residue line. It is then heated in the tube still whence it flows directly to the fractionating tower. Gas oil is secured as overhead vapor product and is condensed and cooled by means of a vapor heat exchanger and condenser located in the top of the tower. The necessary amount of condensate is diverted back to the top tray of the tower to serve as reflux, and the net yield of gas oil flows to a rundown tank maintained under vacuum, from which it is pumped through a final cooler to storage.

Light and heavy wax distillates are secured as liquid side streams, each flowing by gravity through a cooler to a rundown tank located in the base of each external stripper. From there the side streams are pumped to storage. The residue is pumped through a heat exchanger to storage.

Although the method of operation of the unit is simple, the design allows considerable flexibility.

The unit has been in successful operation since installation some nine months ago, and has been operated under various conditions, including the following:

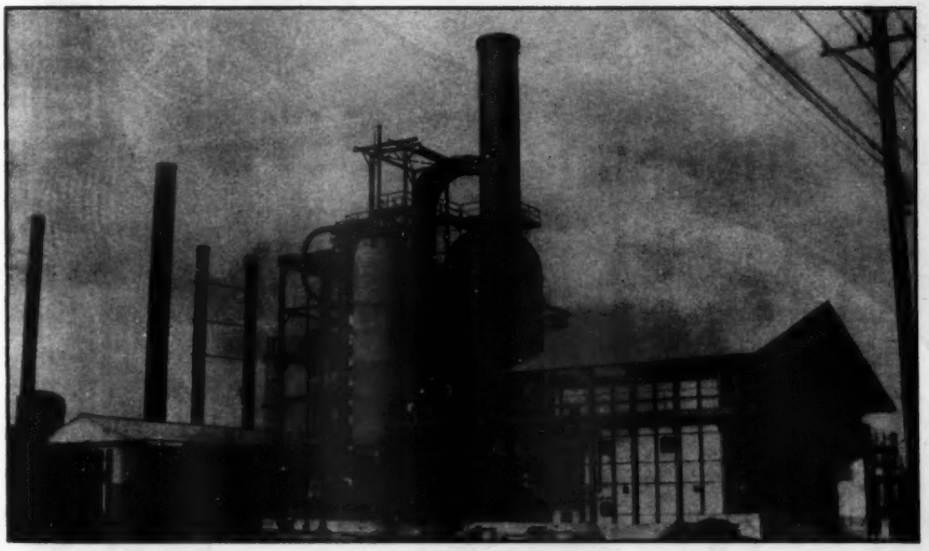
Under atmospheric conditions, Hurghada crude oil was run to a 68 per cent fuel oil residue, taking two side streams and no overhead; Rumanian crude oil was run to a 46 per cent fluxing oil residue taking gas oil as overhead products and two side streams.

Under vacuum conditions, Hurghada residue was run to 39 per cent bitumen of 36 penetration and 130+ ductility, and Venezuelan residue to 47 per cent bitumen of similar characteristics.

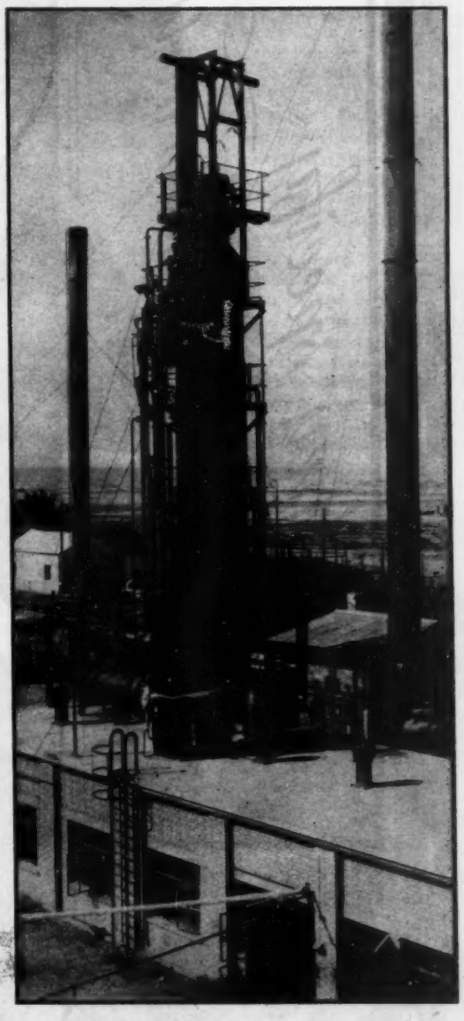
Softer grades of bitumen have also been obtained. In each case the throughput was the maximum of 60 tons per day.

This type of unit has been developed to meet the requirements of refiners wishing to completely process relatively small throughputs of crude under atmospheric and vacuum conditions, it being particularly economic when the throughput is not sufficiently large to warrant the expense of a two-stage unit. If it is desired to increase the throughput of crude oil at a later date, an atmospheric stage may be added thus completing a two-stage unit of approximately double the capacity, in terms of crude oil.

Similar single-stage, duo-purpose atmospheric and vacuum distilling units are now being operated satisfactorily in France, Poland and Scotland also. The development of this type unit opens a much wider field of operations to the small refiner who can afford only a small capacity unit, producing lube cuts under atmospheric pressure and deleteriously high temperatures, or who has to content himself with tackling either the white products end, or lube oil end, of the full range of petroleum products—not being in a position to install a two-stage unit, or separate atmospheric and vacuum units. For refiners handling residues for the production of lubes and asphalts under vacuum it is also particularly advantageous as it enables them to purchase poorly stripped residues which, when handled under high vacuum only, resulted in heavy losses of light ends, uncondensable under such conditions.



Atmospheric-vacuum unit of the Lago Oil & Transport Company, Aruba, D. W. I., which was recently placed in service. This is one of the major new developments having a capacity of 30,000 bbls. per day, of Foster Wheeler design



Single-stage duo-purpose atmospheric and vacuum distillation unit at Suez, Egypt, refinery of the Egyptian government

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Continuous Treating and Centrifugal Separation of Sludge Used Abroad

Recent developments at refineries in foreign countries and in the United States point to a widening field for the application of continuous acid treating and centrifugal separation of sludge. Developed by The Sharples Specialty Co. and the Vacuum Oil Co., Inc. in 1932 to treat residual oils in the manufacture of bright stocks, its application has been extended to include overhead neutrals and pressure distillates.

In several installations in foreign countries including three in France and one each in South America and Japan it has been found to be an economical method of acid treating and also facilitates the recovery of the acid from the sludge which is the final operation in the treating cycle. The controlled acid treatment followed by centrifugal separation of sludge and treated oil, provides a quick means of contacting oil and acid followed by rapid separation of the sludge from the oil. This operation, while effectively removing the objectional properties, is controlled so that it is not overdone as often happens in the conventional methods of acid treating and sludge removal. Prolonged contact of acid and sludge which is unavoidable in separation by gravity, is particularly objectionable in the case of naphthenic oils and high viscosity paraffinic oils. In the first case the action of acid on certain naphthenes often results in the removal of desirable properties as sludge and in the latter case, the long period required for separation of sludge and oil by gravity is injurious to the latter, and results in unnecessary treating losses.

The application to pressure distillate followed the perfection of the process with steam refined stocks and neutrals. The same operating principles apply. By control of quantity of acid used and time of contacting it is possible to remove those properties of the pressure distillate which are objectionable in the finished motor fuel. At the same time the acid treatment is not extended to the point where there is a removal of aromatic hydrocarbons of special value in relation to the antiknock rating of gasoline.

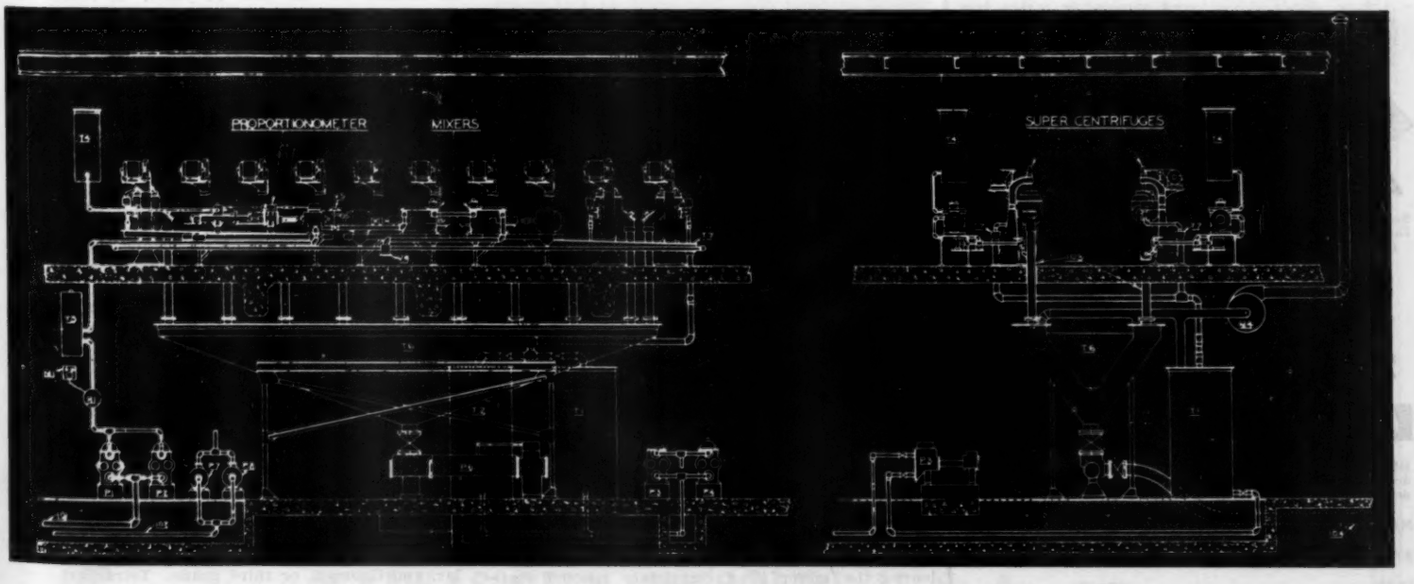
In a new South American refinery in operation for well over a year, the installation of this process for treating lubricating oils and pressure distillates has made it unnecessary to build agitators. The three units consist of apparatus for (1) Continuous treating of pressure distillate, (2) Continuous treating of residuum of approximately 200 viscosity at 210, (3) Continuous treating of neutrals.

First floor of a two-story building which houses centrifugal acid treating plant. View shows sludge hopper with magna pump and sour oil receiving tanks

Considerable experimental work was necessary in developing the equipment used in this process. One of the most difficult features was the design of a mechanical device which would assure the proper proportions of acid and oil for the contact operation. A unit was finally perfected which has considerable flexibility in the handling of oils of varying viscosities and other properties which are reflected in the quantities of acid required for effective treating. Centrifugal equipment for the separation of the oil and sludge had to be designed on an entirely new basis from any previous application and this has also been perfected in line with operating requirements. The heater, mixer and hopper for sludge removal are other major operating phases of the unit.

The accompanying diagram shows the main features of proportionometer, mixer, centrifuges and sludge hopper and illustrates the method of operation.

The oil enters the plant through lines 101 to the feed pumps P-1 or P-2; then through the steam heater H-1 controlled by the thermostat M-1, passing through tank T-5 which is an air separator and flowing from this to the acid pro-



Side and end diagrams of the Sharples centrifugal process for acid treating and sludge removal

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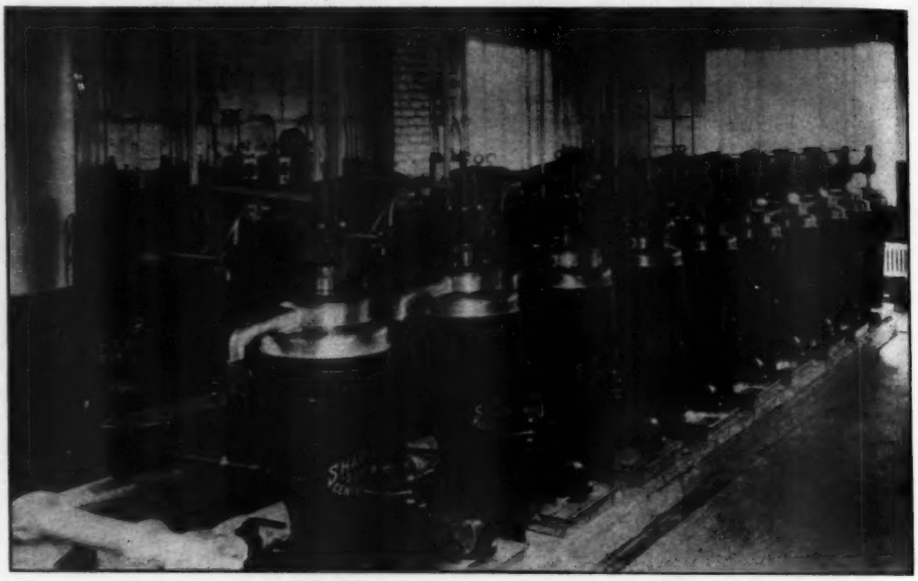
portionometer which draws its acid from the constant level tank T-4. This is kept full by acid pumps P-7 or P-8. Measured oil and measured acid flow from the proportionometer separately to the first of the two mixers and passes through them in series, the number and volume of the mixers being varied in different installations in order to regulate the reaction time factor. The sour oil and sludge mixture flows from the last of these mixers to the centrifuges where separation takes place, sour oil flowing to the run-down tanks T-1 or T-2 and discharged to storage by the pumps P-3 or P-4. The sludge flows into the sludge hopper T-6 and is pumped to the recovery plant by the Magma pump P-6. The entire system is practically gas tight, and sulfur dioxide fumes generated by the reaction are discharged from the system into the atmosphere by means of a blower, M-4.

Detailed features of design as furnished by Sharples engineers follow. The proportionometer used for measuring the acid in proportion to the oil consists of an oil meter interconnected with a combined acid pump and meter. The oil meter is of the duplex piston type. This is a positive displacement device and gives a very accurate measurement of the oil passed into the system over a wide range of rates of flow, temperatures or viscosities of the oil treated. The acid is pumped and measured into the system by a new design simplex steam pump. This pump is double acting, outside packed with plungers, valves, etc., of acid resisting metal. The valves of the acid cylinder are operated mechanically eliminating the inaccuracy due to the lag or slip and hammer which occurs in the commonly used check valves.

Both the acid valves and the steam valves of the steam cylinder are operated by a pilot steam cylinder and piston, the operation of which is controlled by a frictionless valve which is in turn controlled by the oil meter. By this arrangement one cycle of the acid measuring pump occurs for each cycle of the oil meter. The proportion of acid pumped is controlled by limiting the stroke of the acid pump and the stroke may be varied to give different acid proportions while the pump is in operation. Throttle valves have been incorporated in the steam drive to give smooth action of the steam pistons. This proportionometer will give an accurate proportional measurement of acid to oil over all rates from no flow to the maximum handled by the equipment. When there is no flow of oil the acid flow is shut off entirely.

The mixer is of the multistage type. Correct factors for violence of agitation and duration of contact of the acid and oil have been incorporated in the design of the mixer so that the mixture leaves the mixer in a completely reacted state suitable for separation. The mixer is equipped with ball bearings mounted independently of the mixing chamber so that no acid or sludge may come in contact with the bearings and is driven by direct connected electric motor. The mixing chamber may be opened for examination and cleaning without removal of the mechanism used in the agitation.

The centrifuge used is adapted to this use with the special consideration of the discharge of sludge, elimination of sulfur-dioxide fumes, and protection from corrosion. The sludge collector is of large area with steeply inclined surfaces leading to a large discharge pipe so that the most viscous sludge may flow away readily by gravity. This collector is a part of the frame and is permanently connected to the discharge pipe by a slip joint to take care of heat expansion. The collector and joints are gas-tight preventing escape of sulfur-dioxide. The centrifuge bowl is of monel metal. Large ports for the discharge of sludge are a feature of the bowl.



Second floor of building housing centrifugal acid treating plant. View shows north half of battery of 20-machine battery

Study of Canadian Gasoline Covers Past Eleven Years

The Canadian Division of Fuels and Fuel Testing at Ottawa has made at the fuel research laboratories a continuous study of the gasoline sold in Canada for the past 11 years. A report on the latest gasoline survey by H. McD. Chantier gives the detailed results of analyses of 117 samples of gasoline from wholesale dealers and distributors in 15 cities during July, 1934.

It was found that the average gasoline sold in Canada was of good quality, with a higher volatility than during any previous year, and that the variation in quality was less than in any previous year when judged by the volatility. The knock rating of the average gasoline sold in 1934 was 66 octane number as compared with the average knock ratings of 65 octane number in 1933 and the estimated 62 octane number in 1927.

According to their knock ratings, the samples may be divided into three groups. These groups in 1934 would have average octane numbers of 77, 68 and 56, respectively; corresponding groups in 1933 averaged 76, 69 and 60. The average Reid vapor pressure of the samples in 1934 was 7.5 pounds per square inch. Less than 5 per cent of the samples contained more than 10 milligrams of gum per 100 milliliters. All but one of the gasolines gave a negative corrosion test with a copper strip. Seventy per cent of the gasoline samples were artificially colored.

In the grouping of samples, the gasolines were rated as Group 1, or premium; Group 2, or regular, and Group 3, or third grade. Tetraethyl lead was blended with the majority of the 1934 sam-

Loading An Export Order for Venezuela...

Loading a two-car shipment of Columbian 1,000-barrel oil tanks for export to Venezuela.

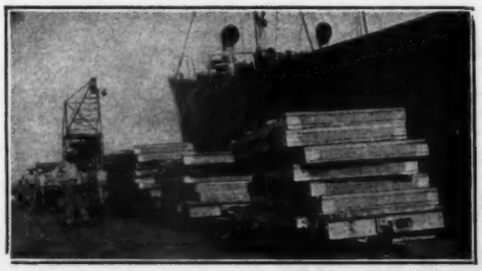
Years of export experience makes COLUMBIAN

the efficient, dependable exporting leader

There is no substitute for experience in building efficiency in the exporting business. That's why Columbian is well known as an exporting leader. Columbian's years of experience in handling and shipping tanks for export assures every shipment being handled in a dependable and efficient manner. They have shipped to almost every country in the world and know every necessary procedure of foreign shipment.

For many years Columbian has been the largest fabricator in the world of bolted steel tanks for the oil industry. Wherever oil is being produced, the world over, batteries of Columbian Bolted Tanks will be found.

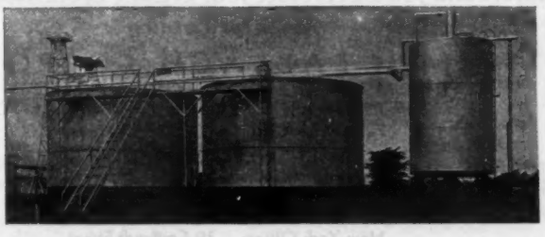
Columbian Bolted Tanks are precision built of selected copper bearing steel. Every section is formed, flanged and punched on enormous precision machinery so that they fit perfectly. This makes them easier and quicker to erect —or to be taken down and moved to another location.



Loading Columbian Bolted Steel Tanks on Shipboard for Export

Interchangeable pie-shaped segments of the Columbian self-supporting deck, with one edge flanged down, makes the strongest deck available. Inside ladders are heavier.

WRITE now for the Columbian Bolted Tank Book. It's informative, interesting and helpful.



COLUMBIAN STEEL TANK CO.

KANSAS CITY, MISSOURI, U. S. A.

The Safest Protectors for Over-seas' Drilling

DRILLING OPERATORS in remote fields should use extreme care in selecting drill pipe protectors.

It is imperative that the protectors have an established record for long-wearing quality. When initial requisitions for Over-seas' equipment are placed, no great amount of excess equipment is usually ordered. Immediate sources of supply for replacement in Over-seas' fields are invariably unavailable. In event of premature failure when using inferior protectors, drilling operations are endangered. Therefore, it is absolutely essential that drilling operators select drill pipe protectors with a proven, failure-proof record.

Patterson-Ballagh Protectors repeatedly outlast the drill pipe, even under the most severe conditions, and frequently give service in drilling several wells. The world's toughest rubber is used. It is fresh, live, compounded by processes specially developed for protector service. For the past eight years Patterson-Ballagh Protectors have been produced in a factory designed exclusively for this one product.

Many major companies who have been lured by cut prices for cheap imitation protectors have returned to Patterson-Ballagh Protectors—the original, genuine article. Ordinary cheap protectors are frequently found worthless because the rubber is of inferior compositoin and does not have the essential tenacity. As a result, operators must suspend drilling operations for many weeks or continue drilling without protection.

Additional hazards occur. Undue casing wear very definitely reduces the life of a well. Other costly factors are: excessive wear on tool joints, fishing jobs and extra time required to complete the well.

The remedy is:

PATTERSON-BALLAGH PROTECTORS

Anticipate your needs for protectors; then order Patterson-Ballagh Protectors and you will protect your drilling operations completely.

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1900 E. 65th St. Los Angeles, Calif., U. S. A.

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Sold by all Supply Houses

ples in Groups 1 and 2, and benzol was added to four samples to increase their knock ratings.

The highest retail price shown was 28 cents per imperial gallon and the lowest 13 cents. The provincial gasoline tax varies from 6 to 8 cents per imperial gallon, depending on the province. In the city of Ottawa, generally speaking, the retail price of the premium gasoline was 2 cents higher and of the third grade from 1 to 2 cents lower than the retail price of the regular grade.

Only four brands in the third grade group showed octane numbers below 50.

Contributions of Oil Refining to the Chemical Industry

NEW YORK.—The present and possible contributions of petroleum refining to the chemical industry were indicated here during the joint exhibit of the Pure Oil Co. and the Alco Products Co. at the fifteenth exposition of the Chemical Industries held at Grand Central Palace. The exposition included a large number of exhibits by other concerns which serve the oil industry. Over 50,000 people connected with the various branches of the chemical industry attended the exposition.

The Pure Oil-Alco exhibit showed samples of various products which are now obtainable as by-products of refinery operations. Several of these products are being manufactured on a commercial basis supplanting in some cases other products or methods of manufacture which had been carried on for years. In this connection emphasis was placed on the possibilities in chemical manufacture from thermal polymerization which is now being rapidly accepted as a necessary phase of petroleum refining. This operation aside from the manufacture of high octane motor fuels through the polymerization of natural and cracked gases furnishes the base material for a large number of products widely used in the chemical industries.

The exhibit here of products included: ethylene dichloride, ethylene glycol, ethylene, ethylene dibromide, ethyl ether, diethyl sulfate, toluene, benzene, acetone, ethanol and xethyl ethyl ketone. Base materials and other products included propylene, iso-butene, butene-1, isopropanol, acetic acid, xylene, mineral spirits, tertiary butyl, alcohol, triethanolamine, maphthalene, second butyl alcohol, iso-octane, solid and liquid resin. The latter products are being used as substitutes for linseed oil.

Included in the more than 250 exhibitors were: Air Reduction Sales Co., Allis-Chalmers Mfg. Co., American Meter Co., Bakelite Corp., Blaw-Knox Co., Bristol Co., Brown Instrument Co., Carbide and Carbon Chemicals Corp., Devine Mfg. Co., Duriron Co., Inc., Foxboro Co., Garlock Packing Co., General Electric Co., Gyro Process Co., Haynes Stellite Co., Hazard Wire Rope Co., Hills-McCanna Co., International Nickle Co., Johns-Manville Co., Leeds & Northrup Co., Linde Air Products Co., Link-Belt Co., Merco Nordstrom Valve Co., Line Safety Appliances Co., Minneapolis-Honeywell Regulator Co., National Carbon Co., National Lead Co., United States Steel Subsidiaries, Oliver United Filters, Inc., Podbielniak Industrial Research and Analytical Laboratories, Quigley Co., Refinery Supply Co., Roebling's Sons Co., Sarco Co., Sharples Solvents Corp., Sharples Specialty Co., Tagliabue Mfg. Co., Taylor Instrument Co., Westinghouse Electric & Manufacturing Co. and Yale & Towne Manufacturing Co.

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Digging In For the Shot

Party of geologists on location

Venezuela Company Uses Mechanical Process for Treating Oil Emulsions

The economical removal of water and emulsion from relatively heavy oil is being accomplished by the Venezuela Gulf Oil Co. in the Lagunillas field of Venezuela through the application of several mechanical features not generally employed.

As the entire producing property is located over Lake Maracaibo, it was found desirable to locate the plants over water on creosoted pile foundations. In general, the wet oil is segregated at the flow stations and pumped to central treating plants through an independent wet oil gathering system. This makes possible the adjustment of the through-put to any one treating plant with little difficulty. A flow diagram of a standard plant is shown above, and it is seen, in general, to follow the conventional chemical system employing excelsior dehydrating tanks. The wet oil is pumped from the wet oil receiving tank (1) by an electric circulating pump (3) to the boiler heaters (5), chemical being added to the suction of the circulating pump by means of a small electric motor driven centrifugal pump (2). A second pump (4) recycles tank bottoms from the first excelsior tank to the boiler heaters with the wet crude. From the boiler heaters, the oil enters the gas separator chamber (6) and flows by gravity through the two excelsior packed scrubbing tanks (7 and 8) and hence through an oil meter (9) into a settling and storage tank (10) from which it is pumped as clean oil to the main tank farm.

The use of four-speed electric motors on the 4 x 6 inch reciprocating circulating pumps has been found to be of considerable value as this makes possible a close adjustment of the volume of raw wet oil and hot recycled oil according to the characteristics of the emulsion with a maximum motor efficiency. In addition to the above, the use of gravity type oil meters has been found to result in more economical installation costs due to the fact that no tankage is required for gauging purposes. Both the incoming wet oil and outgoing clean oil are gauged by these meters.

After several trials, the most effective and economic baffling arrangement for use in the excelsior packed tanks was found to be an 18-inch deflector ring installed around the peripheral edge of the tank. This arrangement consists of a wooden ring sealed to the edge of the tank by oakum caulking, which effectively prevents the by-passing of the oil up the sides of the tank.

During the experimental days of treating in the Lagunillas Basin, gravel filters were proposed and tried. In this connection due to the lithology of the terrain adjacent to Lake Maracaibo no economical source of gravel could be found, and the idea was, therefore, given up.

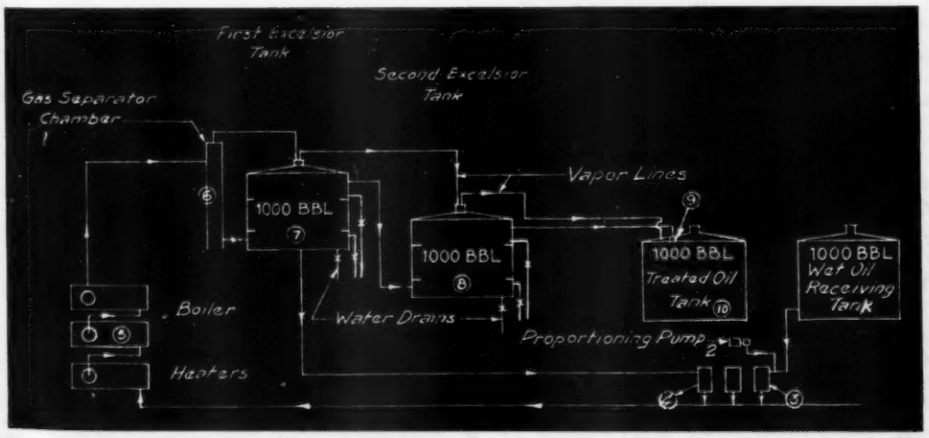
Since relatively fresh water is produced with the oil, the resulting emulsion is very difficult to break down. For this reason the use of artificial salt water for washing the emulsions was attempted, but this was found to be an extremely expensive measure as a result of the excessive cost of the salt. Salt, being a Venezuelan government monopoly, bears a tax which results in too great a cost per ton for this type of work, and its use had, therefore, to be abandoned. As a result, sea water was brought in from the ocean as ballast in the lake tankers, but its use was found to be unsuccessful in improving the economy of operations.

Following are the general characteristics of the oil now being successfully treated by the above chemical method:

Gravity range	—14° to 19° A.P.I.
Viscosity range	—900 to 3,500 secs. S.U.S.
Cut	—10 to 90 per cent B.S.&W.
Base	—Intermediate.

An over-water treating plant of the type illustrated can be constructed at a cost of approximately $9 per barrel of installed capacity, and operated with total direct costs of around 1 cent per barrel of clean oil delivered to storage.

View of tanks for treating the oil coming from the fields in Venezuela



Flow diagram of treating plant used by Gulf Oil Corporation in Venezuela

Widening of Diesel Power and Diesel Fuel Demand

NEW YORK.—A widening use for Diesel power in the oil industry with a similar situation in several other industries which will mean an increased demand for diesel fuels was revealed at a meeting of the Oil and Gas Power Division of the American Society of Mechanical Engineers which held its fifty-sixth annual meeting here a week ago. At this session a report of the operating costs covering approximately 160 typical diesel plants for various uses was presented. Several special papers and prepared discussions were presented at the meeting dealing with various phases of the diesel development. M. J. Reed, secretary of the Diesel Engine Manufacturers' Association made the following summary of the status of the diesel engine at this time.

"Besides four automotive diesel engines making their appearance at the National Automobile Show, one prominent pleasure car manufacturer now is in a position to offer his product powered by a diesel. Recent estimates place the number of diesel trucks in operation by the first of the year as between 2,000 and 2,500.

"This interest in the automotive line has also stimulated sales in the marine small boat division. In the marine field there is a tendency toward higher rotative speeds, and abroad, toward the use of diesel power for larger ships, due, at least in part, to better fuel economies. Another factor is the attention now being paid to the utilization of waste heat of diesel engines on board ship with attendant return of handsome profits.

"This year has seen the completion and application of three new commercially made submarine engines. These engines have already been closely tied up with the progress and use of rail cars and streamline trains. This year has also seen the advent of the first full-fledged main-line diesel locomotive in the United States.

"Supercharging has been long popular in Europe and now is claiming attention in this country. Important developments and wider use of supercharging will undoubtedly be made in the next few years.

"In the oil fields, attention has been turned to the convertible diesel units which are able to burn either natural gas or oil.

"Several engine manufacturers have already made arrangements to rebuild or extend their

present plants. Last year's production of diesel and semi-diesel engines was approximately 750,000 horsepower and predictions were made at that time that a total of 1,500,000 horsepower would be produced in the year 1935. It is too early to say whether these predictions will prove correct but it is certain that the year's output will be over 1,000,000 horsepower."

T. D. Tifft of the Sinclair Refining Co., presided as chairman at the meeting of the Petroleum Division. Harry F. Moore of the Standard Oil Development Co. led an informal discussion on "Control Apparatus in Oil Refining." N. T. Buddine of the Alco Products Co., Inc., presented a paper on "Heat-Recovery Design for Petroleum Refineries."

Cunard White Star, Ltd., has placed an order with Vacuum Oil Co., Ltd., for the lubricating oil requirements for the main propelling machinery of the great liner Queen Mary.

The Oil Industry and the World Crisis Is Discussed by J. B. Aug. Kessler

The annual economic lecture to the London, England, branch of the Students' Section of the Institution of Petroleum Technologists was delivered by J. B. Aug. Kessler, C.B.E., joint managing director of the Royal Dutch Petroleum Co., at the Sir John Cass Institute, London, E.C.

Mr. Kessler, at the outset, said the consumption of oil products had increased very considerably during the years following the war.

From May, 1929, production in the United States was increasing very rapidly, and by August it had reached the level of 3,000,000 bbls. a day. That was, of course, far too big a production. The different states were working individually, although really cooperating, to reduce that production to a certain extent, and by the end of 1929 they succeeded in reducing it to 2,640,000 bbls. daily. They went even further in 1930 and reduced it by one-third. The stocks had thus increased and by May, 1930, the level of 700,000,000 bbls. was reached. The price levels had been undermined considerably. The Petroleum Export Association could no longer be maintained and the whole association came to an end at the close of 1930.

The Rumanians then realized that it was overproduction that was undermining the price levels and therefore the Rumanian oil producers tried to do something constructive. In 1930 they succeeded in reducing production to the 1929 level. In the second half of 1930 the production in the United States was so weak and the stocks were so enormous that the result was a price decline. The whole plan then collapsed, of course, and all restrictions were withdrawn.

In his opinion all those different efforts failed through lack of synchronization. Whatever all the various people in the oil industries did and said, he was sure that it was extremely difficult and would prove to be an impossibility without synchronization. The year 1931 was disappointing. Legal difficulties still made any work suggested impossible. A plan based on voluntary curtailment failed owing to those legal difficulties.

Russian Suggestion

In 1932 the Russians, who had been exporting increasing quantities, felt that they were in a strong position to take the initiative and they suggested a conference to bring themselves into line with the world's efforts. They had a conference with them in New York and talked things over, but it was found quite impossible to do anything. That failure did not stop them, and that same year they continued negotiations with the Rumanians. In the meantime, the production in the United States had been kept on a more stable level and prices did not go up. That encouraged the chief oil companies to further efforts. They felt that they must try and see if they could not bring about a sort of international arrangement to cut down over-production.

Over-production of oil simply meant waste for the world and that meant that there would be no reserves for future generations. Therefore, some equilibrium between supply and demand had to be maintained. They got together with the Rumanians once more and they put into effect an arrangement by which their production was stabilized. That came into effect on January 1, 1933. Just at that time American production, which had been under satisfactory control, broken down again. At that time a new discovery was made—that of "hot" oil production. "Hot" oil production increased supplies in large quantities at the beginning of 1933, just when the United States started to apply its conservation.

In consequence of that rapid increase in United States production, prices dropped. For the second time the Rumanians found out that by producing under agreement you get no better prices for a smaller quantity, and, therefore, that world-wide arrangements were very disappointing. By the end of 1933 there was no longer any agreement.

World Crisis

In 1934 the production was better controlled, but the stocks had been so large throughout the world that prices did not recover as quickly as they had hoped. In 1934 a new oil producer was put on the world markets and provided more supplies for which the world really had no need. Another feature, which was really the result of the world crisis, had in the meantime come into effect.

The British government tried to be self-sufficient. That would have done away with the oil industry as such. It was the result of the confusion created by the world crisis. The government tried to justify home production of motor spirit

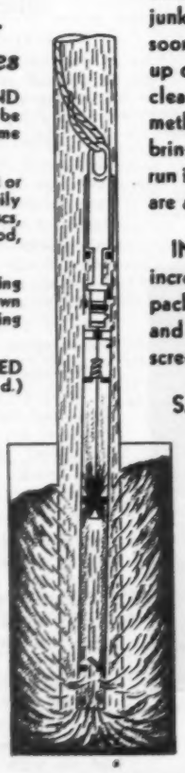
The CAVINS

3 TOOLS IN ONE

A BAILER
A FISHING TOOL
and a
PERFORATION WASHER
all in one Tool

UNEQUALLED For The Following Purposes

1. BREAKING HARD PACKED SAND BRIDGES: Also, ordinary sand may be cleaned out in about one-third the time formerly required for this purpose.
2. FISHING: By attaching a junk basket or trap to bottom, The CAVINS will easily recover such "fish" as pins, cones, discs, cuttings of all kinds, rubber, pieces of wood, iron and steel weighing up to 40 lbs.
3. CLEANING PERFORATIONS: During ordinary bailing operations sand will be drawn into the tool from behind the pipe, washing the perforations, or screen, thoroughly.
4. CLEANING OUT SAND-BRIDGED TUBING: for which a special size (2" o. d.) is manufactured.
5. CLEANING OUT SAND AROUND A "FISH": in order to permit a socket or other fishing tool to grip the fish. A suitable shoe, or bottom, is supplied for this purpose.
6. SETTING LINERS.



The CAVINS is the fastest as well as the most efficient method of cleaning out wells, fishing for junk, and washing perforations. It can be run as soon as the tubing is pulled, requires no rigging-up or spudding, and ordinarily will have the well cleaned out in less time than it takes to get other methods in operation. It operates at high speed, bringing out load after load as fast as it can be run in and pulled out. Loading and dumping both are automatic.

INCREASES PRODUCTION: The CAVINS increases production by removing all loose and packed sand and creating a larger drainage area, and by thoroughly cleaning the perforations or screen.

SAVES FLOWING WELLS: by cleaning out sand bridges inside the tubing, and eliminates the necessity of killing and pulling the well.

HOW IT OPERATES: The illustration at left shows how the CAVINS creates a tremendous hydraulic-suction as it comes to rest on bottom of hole, utilizing the enormous pressure in the fluid-column to wash everything at or near the bottom of the bailer shoe into the load chamber.

WRITE for Further Information.

Detailed information covering The CAVINS and its operation, together with records of performance and illustrations showing types of materials recovered, will be supplied on request, without obligation.

Successful fishing jobs like this are common occurrences when The CAVINS is used.

Illustration made from unretouched photograph showing pile of junk recovered from a California well in just a few hours by The CAVINS, consisting of three complete cones weighing eight pounds, and 150 pounds of iron, steel cuttings, and other material.

THE CAVINS COMPANY

2853 Cherry Avenue. Long Beach, California, U. S. A.

Cable Address: "Cavins, Long Beach".

R. J. Eiche, Foreign Representative.

Branches and Service Representatives in Principal Fields.

from coal and the use of alcohol for motor fuel but both were much too costly. All that aiming at self-sufficiency was, of course, the result of confusion in currency.

The history of the past five years has shown that the oil industry, and particularly the big companies, must cooperate to stop wasteful production and thus reserve the valuable oil for future generations. The fact that nothing really satisfactory has been achieved was due to a very large extent to the laws in the United States, which made international arrangements extremely difficult and also because of lack of synchronization.

Even if these laws had not existed, however, and even if synchronization had been more practical, he did not think that the depression in the oil industry would have been avoided.

It was the world crisis that was really the main trouble. To return for a moment to the oil industry, however, as he had said, the consumption of oil increased after the war, but then demand fell again, with the result that they were over-producing. Taking everything into consideration, therefore, and their position 10 or 15 years ago, compared with the lack of demand during the years between 1929 and 1932, he thought that the decline in consumption was due to the world crisis. There the oil industry's crisis and the world crisis became connected.

The world had got to a point of very considerable prosperity under rules which they should not throw overboard too lightly. The crisis was gradually disappearing. He thought things were improving, and in the years to come they would recover. If the world crisis was disappearing, the oil industry could expect to share in the growing prosperity.

Switzerland Also Is Discussing Prospects for Petroleum

An interesting report is that the Forages Petroles et Gaz Co. ("Fopega"), recently registered at Lausanne, has successfully applied to the administration of the Canton of Neuenburg for a concession to search for and exploit petroleum in the Swiss Jura. The Canton of Neuenburg some time ago passed a mining law, petroleum being among the mineral substances subject to the new legislation. The Fopega company has founded subsidiaries at Lausanne and Bale, and it is said that the new companies intend to commence drilling in the neighborhood of Saint Croix and Saint Aubin; outfits capable of drilling 6,000 feet are stated to be ready on order. It is believed that Belgian money, in Royal Dutch interests, are behind the venture.

Writing in Der Bund on the possibilities of the occurrence of oil in Switzerland, the petroleum geologist, Dr. J. Kopp says: While countries bordering on Switzerland have shown great activity in recent years in conducting petroleum-geological investigations, in Switzerland itself no great inclination to follow these examples has manifested it-

Sea line of Iraq line entering water

надежность
Heureux
Seguro
DEPENDABLE
in any language

STANDARD BOWEN ROTARY JARS

These jars have world-wide use and are noted for their simplicity, strength and speed. No torque in the drill pipe is required for their operation. As many as ten blows per minute have been struck. This jar is used not only as a fishing jar, but also as a safety device under many different conditions. It is often put in the drill pipe string in drilling sticky formations; in reaming; in coring; in running feelers and liners; in sidetracking, and in finding vibration with spears.

Rotary Jar

THE SPECIAL BOWEN ROTARY JAR FOR FISHING

(Illustrated Here)

This tool is essentially the same as the Standard Rotary Jar except that it is provided with means whereby the pull required to trip it can be varied without removing it from the well. This type of Jar, also known as Type-C, is recommended for use only in straight pull fishing operations and is not recommended for drilling or reaming or in any operation where torque is placed in the drill string.

BOWEN ROTARY RELEASING SPEAR

In addition to the ordinary purposes of loosening stuck casing and for removing liners, The Bowen Spear has come into general use for holding casing while the upper joint is being removed to screw on a nipple cut to the proper length for a permanent landing. It is also used as a liner setting tool and for left handing casing or tubing from wells. Slips with vertically cut wickers are furnished for holding and backing out jobs.

It is sturdy, simple and effective. Its releasing mechanism has never been known to fail even when used under the most adverse conditions.

Multiple-step SLIPS provide a large area contacting the walls of the casing, avoiding its distortion under heavy jarring. The slips are carried in a cage which by a slight turn of the drill pipe brings them either into contact with the tapered expanding faces on the spear body or into the neutral releasing slots therein as may be desired.

Bowen Spears can be set and reset indefinitely without bringing the tool to the surface.

Spear

BOWEN RELEASING OVERSHOT— TEXAS TYPE

This tool catches drill pipe, couplings or tool joints whichever is up. This is done without change of slips, or making any adjustment whatever. An entirely novel gripping member is used in this accomplishment. Its release from the fish is simple and positive. A downward bump followed by slight rotation to the right simultaneous with upward movement, releases the hold of the gripping member from the fish. This tool is so designed that with the smallest possible outside diameter it will stand the hardest usage.

Means for packing off on either drill pipe, couplings or tool joints are provided.

Unquestionably this is the outstanding new fishing tool of recent years.

Overshot

S.R. BOWEN CO.

General Offices and Plant: Huntington Beach, California

Southern California Service: Long Beach, Santa Fe Springs
Valley Fishing Tool Co., Bakersfield, Ventura, Avenal

Gulf Coast: Bowen Co. of Texas, 202 Vincent St., Houston, Texas

Export Office: 30 Rockefeller Plaza, New York City.

self. There is an important work in existence, which deals with the likely areas for finding petroleum in Switzerland; it was compiled during the war by Dr. Arnold Heim and Dr. A. Hartmann. The practical and scientific inquiries of these experts yielded noteworthy results, but they did not receive the attention they deserved. The book contains valuable pointers to districts which are the most likely to be suitable for drilling for petroleum owing to their favorable geology.

The most promising areas in Switzerland for the finding of petroleum, Doctor Kopp says, may be said to be the sub-Alpine molasse and flysch regions at the foot of the Alps and the zones of molasse plications at the foot of the Jura. Traces of petroleum have been found, where the sub-Alpine molasse is concerned, in the Pontersalp on the Santis, in the Ricken tunnel, and in the well drilled for petroleum at Tuggen. Dr. Arnold Heim mentions that: "After the surprising finds in the Ricken tunnel, it is not impossible that deep drilling in the northern anticlinal zone of the sub-Alpine molasse might yield large quantities of gas for illumination and industrial purposes, and that accompanying oil might also be discovered. This district has not yet been studied closely in petroleum-geological respect." It was in this district, however, that a well was drilled for oil at Tuggen, when a commercial deposit was not located, although gas and traces of petroleum pitch were encountered. The operation was not preceded by thorough geological and geophysical examinations, and the failure of the well at Tuggen by no means rules out the possibility of the existence of commercial petroleum deposits in the sub-Alpine molasse.

The second likely area in Switzerland is the molasse plications bordering the Jura, traces of petroleum having been found between Geneva and Aarau. Small wells were drilled in this area, but they were badly placed, and did not yield any definite data. The writer is of the opinion that petroleum-geological investigations in Switzerland should be centered specially in these districts, as the molasse plications of the sub-Jura are of relatively simple tectonic structure.

Operations on Bahrein Island Are Described by Manager

Lloyd N. Hamilton, manager for the Bahrein Petroleum Co. in London, recently addressed the London Oil Industries Club on "Prospecting for Oil in the Region of the Persian Gulf."

Mr. Hamilton said the Bahrein Petroleum Co., Ltd., which conducted the venture at Bahrein, was a British company formed under the laws of Canada. The enterprise in Saudi Arabia, quite separate from the Bahrein show, was being conducted by California Arabian Standard Oil Co., which was an American company.

Describing the progress of the Bahrein company enterprise he said a small topping plant had been installed at which petrol was made principally for the company's own use. Its output was about 1,000 American gallons per day. Terminal facilities and a submarine pipe line were also constructed last year. Those comprised three oil tanks of a total capacity of 250,000 bbls., a bilge-water tank to be used if and when necessary for pumping ashore ballast water from tankers, a submarine pipe line a little over 3 miles long, a shore pumping plant and mooring facilities at the other end of the line in about 40 feet of water.

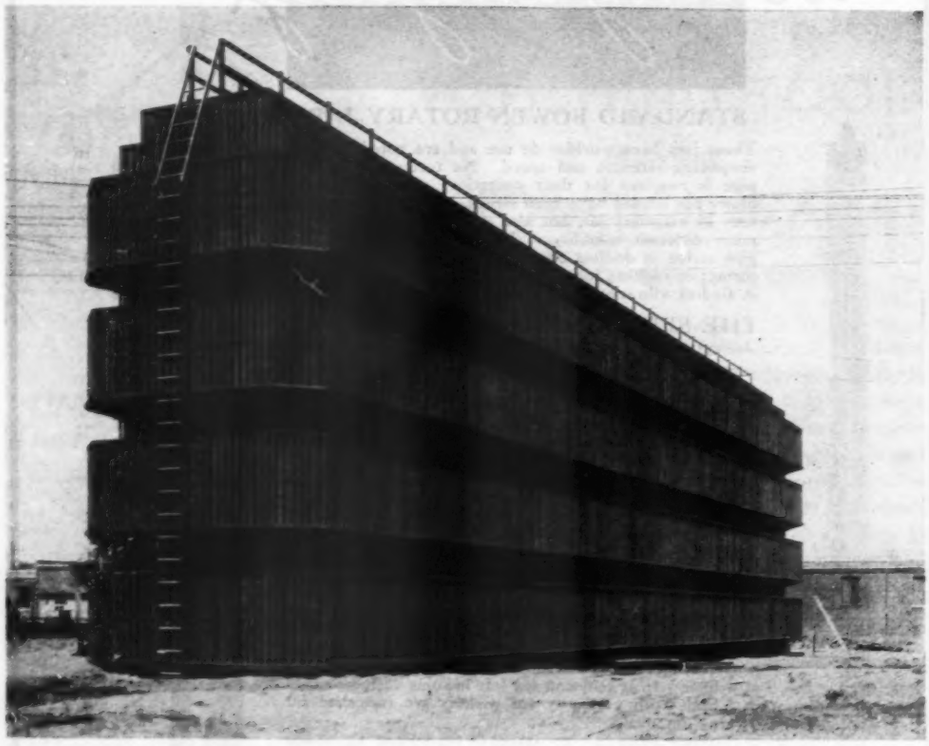
The advent of the oil industry had built up the English-speaking community from a few people to some 80 or 90, including the families who were there, so that the social order in Bahrein had undergone quite a change in a relatively short time —in some respects the social existence had been simplified and in others it had become a little more complicated.

Another enterprise in that general region, still in the making despite inaccurate reports in some quarters that commercial quantities of oil had been discovered there, was that of California Arabian Standard Oil Co. in Saudi Arabia. There the company was now engaged in drilling a test well, located about 6 miles inland from a little coastal village called Khobar, which was just south of another small town called Fort Dammam, and which on an air-line was about 20 miles from Bahrein. At the last report he received, the well was 2,190 feet deep. Several very encouraging shows of oil had been encountered in the last several hundred feet, but as yet the well had not reached the horizon at which it was hoped oil would be discovered in substantial quantities. The encouraging shows of oil had been of a substantial character, and sufficient perhaps to give rise to erroneous reports that the company had encountered oil in tremendous amounts.

The Saudi Arabi concession was granted only a few years ago, in July, 1933. Geological work commenced a few months later, with three field parties of two men each accompanied by soldiers and guides. An airplane equipped with photographing apparatus was also sent into the country, and it had been of a tremendous amount of help in certain reconnaissance work.

As a result of the work thus far done by the geologists operating men and equipment moved into Saudi Arabia toward the end of last year and made the necessary preparations to drill the test well, which was known as No. 1 Dammam. Within a few months water was developed, a pier and roads were constructed, a camp started and materials moved in. Actual drilling began at the end of April of this year. While the camp was being prepared the men lived under canvas. That was during the cool season when the nights were something more than chilly.

Their relations with the Saudi Arab government and with the people they had encountered there had been very friendly. While the field parties traveled with soldiers and the camp was also policed by soldiers, no large number was required. It took but a few to evidence the strong arm of the king, who meted out a stern justice to all offenders. They had never been molested in their work nor has there been any untoward incident of any consequence. With the king's blessing one was safe in Saudi Arabia.



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Expansion of Cracking Plants Abroad Principle Development in Refining

By C. O. WILLSON

There are 805 petroleum refineries of various types and capacities in the world with facilities to distill the light fractions from crude oil—commonly called "skimming" or "topping"—at the rate of 6,132,695 bbls. daily. In the first world survey of cracking facilities ever made The Oil and Gas Journal found that 291 of these 805 refineries had one or more cracking units with a total rated capacity of 1,023,600 bbls. daily. This total includes all types of cracking including reforming of naphtha.

The Journal's survey of refinery operations in the petroleum industry which is summarized by countries in the accompanying table with the detailed operations of individual companies in this issue, revealed general improvement or enlargement programs under way throughout the entire world. In securing world data on refinery operations particular attention was paid to developments outside the North American continent and it was found that with rare exceptions the owners of medium or large capacity refineries were either enlarging their plants or modernizing present facilities in order to keep pace with the demand for improved products at the lowest possible costs.

Crude Capacities

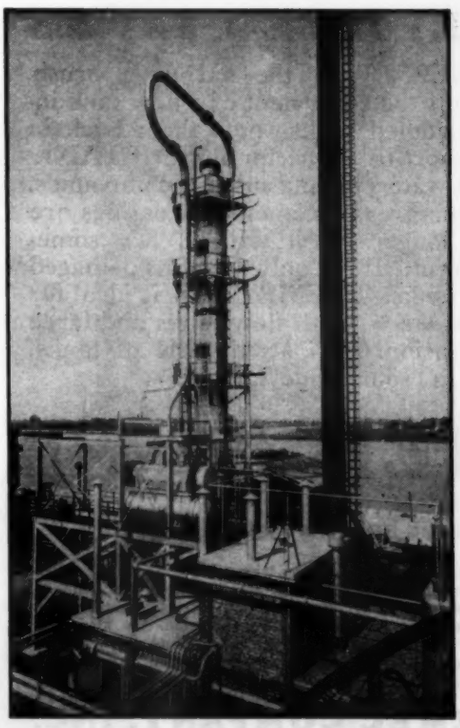
So far as the crude oil capacities by counties are concerned the reports on foreign refinery operations have little economic significance as has been the case for several years in United States. The total capacity of 6,132,695 bbls. daily shown in table is 40 per cent greater than the present world crude oil production of approximately 4,400,000 bbls. daily. This does not mean a large surplus of unused refinery capacity. Actually in a great majority of cases modern crude distillation units capable of giving the maximum efficiency are operating near capacity over a large part of the year. The several hundred million dollars which has been spent in refinery equipment over the past 18 months and the construction programs assured for 1936, are proof of the fact that up-to-date refining facilities have not been built in excess of requirements. Plant operators with unused crude distillation capacity are constantly dismantling all their present equipment and replacing it with new processes which will produce better products at lower costs. In this connection it is necessary to keep in mind that rating plants based on crude oil capacities is a hangover from the early days when refinery processing consisted largely of distillation at atmospheric pressure in shell stills. The latter are now obsolete except in special applications and crude distillation in many refineries is preliminary to the main phases of plant operation. It is often combined with the more important cracking or vacuum operations. Thus the data on crude oil capacity is only of value as indicating the comparative sizes of individual operations with the assurance that for the entire world there is sufficient capacity to refine all the crude petroleum into the products most easily obtainable. It indicates that should an emergency arise in which petroleum refineries of one or more countries outside the United States were shut down, there would still remain sufficient capacity in other parts of the world to obtain the essential petroleum products.

The data of the survey covering refinery locations, type and cracking capacity have more industrial and general economic significance. They reflect the efforts that have been made to locate plants at points strategic both from the standpoint of crude supply and market outlets, and the expansion of operations to produce a wide variety of products. The general growth in cracking is proof of the world wide acceptance by the petroleum industry of its most important tool for the manufacture of more and better products at lower costs coupled with the reduction in waste.

Cracking Facilities

In regard to cracking, the expansion of facilities has been more outstanding over the past two years at foreign refineries than in the United States. As shown in the table the present cracking capacity in United States is 466,200 bbls. daily or 45 per cent of the total. In contrast the crude oil capacity of refineries in United States is 3,815,470 bbls. daily or 62 per cent of the world total. This shows that the foreign refiners as a group have a stronger position as regards cracking than the operators in this country, although their crude oil capacity is less. The Journal's survey revealed that cracking units with a capacity of 125,000 bbls. daily were either recently completed or under construction at this time at foreign refineries.

The quality of the crudes available is the most important situation which has caused foreign refiners to place more emphasis on cracking facilities. A substantial part of the foreign crude supply is low in gravity and to obtain the average yields of gasoline and other light end products it is necessary to crack a large fraction of the crude. In many cases this situation in regard to yields of light end products is tied in with the necessity of lowering the viscosity of the heavy oils in order to secure products for which there is a ready demand. For example, the viscosity breaking operations with the bulk of Venezuela crude to secure bunker grade fuel oils is probably as of great importance to refinery operators as the increased yield of gasoline obtained through the cracking operations.



Distillation unit in a Belgian refinery

Over the past two years there has been a rapid expansion in reforming facilities at foreign refineries. This is also due in part to the properties of the crude oil coupled with the fact that foreign consuming markets following the lead of the United States, are becoming more conscious of antiknock properties in their motor fuels. To cope with this situation most of the larger refiners are finding it expedient to reform at least part of their straightrun naphtha cut. In this connection, some of the medium or higher gravity foreign crude oil supplies such as Iran (Persia) and Iraq give a yield of straightrun gasoline which is below the average in antiknock rating. The high octane rating of the gasoline obtained in the cracking of gas oil cuts is not sufficient to give an overall yield of motor fuel which can compete on an octane basis in world markets. This has forced the installation of naphtha reforming operations. There is the additional fact that the use of ethyl fluid in most foreign markets is not as common as in the United States. The Royal-Dutch-Shell group which are the largest refiners outside the United States have favored the expansion of manufacturing facilities through heavy cracking and reforming to secure high antiknock motor fuels direct rather than the use of a chemical additive. Refiners in France operating with Iraq crude oil are finding it necessary to have reforming as well as the usual gas oil cracking facilities in order to compete with motor fuels available from the United States and other markets. The Anglo-Iranian Oil Co., Ltd., is also making major reforming installations at its Abadan refinery which operates with Iran (Persian) crude oil.

United States Position

In the matter of distribution of refinery capacity United States of course, leads by a wide margin both in number of plants and refinery throughput. Although the bulk of refining capacity in this country comes from a few major refineries, there are a large number of smaller plants. There are many small plants in Germany, Poland and Rumania, but in general the trend in foreign refining is toward large refineries. Those of the Anglo-Iranian at Abadan, Shell at Curacao and Lago (Standard of New Jersey) on Aruba Island in the Netherlands West Indies probably exceed in crude runs to stills any single refinery in the United States. Each is now equipped or will be when present enlargement programs are completed to refine in excess of 150,000 bbls. of crude oil daily.

Considered from the standpoint of distribution by continents, North America, South America and Europe have approximately 92 per cent of the world's refining capacity. This is divided as follows: North America, 66.5 per cent; Europe, 16.5 per cent and South America including the West Indies, 9 per cent. Practically all of the remaining capacity is accounted for by the plants in Iran and those of the Far East.

A study of the world data shows the increasing importance of nationalistic tendencies in determining the location of refineries. Left to themselves, the private oil interests would usually prefer to operate large refineries at points conven-

ient to crude supplies and where climatic, labor and general business conditions are favorable. They would then carry on the world wide distribution from these few plants. This type of operation is most economical both from the standpoint of refining and distribution.

Several governments, however, are interfering with this natural trend. To promote domestic employment, and the purchase of equipment and supplies furnished by domestic plants and in order to have petroleum supplies on hand in time of national emergencies, several countries are forcing the construction of plants within their own boundaries. This is usually accomplished by placing prohibitive tariffs on the importation of finished products with either low or no duties on crude oil.

As a result of this nationalistic policy, France now has 17 refineries with a rated crude oil capacity of 122,550 bbls. daily. Five years ago the capacity of its plants was a few thousand bbls. daily. Canada has seen her refining capacity steadily increase due to a policy of no duties on crude and relatively high tariffs on finished products. Italy is carrying out a nationalistic policy and several other countries throughout the entire world either have similar plans under way or under consideration.

WORLD SURVEY OF PETROLEUM REFINERIES BY COUNTRIES

Includes operating refineries, those under construction and a few plants operating part time

Country—	Number of refineries	Refineries Daily crude oil capacity	Refineries with cracking plants	Refineries Daily cracking capacity
Argentina	16	80,000	8	34,050
Australia	3	5,100	1	800
Austria	8	8,150	..	....
Bahrein Island	1	10,000	..	....
Belgium	7	7,625	3	2,300
Belgium Congo	1	250	1	150
Bolivia	2	400	..	....
Canada	42	159,400	14	73,150
Canary Island	1	5,000	1	2,000
Chile	2	475	..	....
Colombia	1	9,000	..	....
Cuba	1	5,000	1	1,800
Czechoslovakia	11	10,225	1	1,100
Ecuador	3	850	..	....
Egypt	2	11,500	1	2,000
France	17	122,550	14	55,950
Germany	29	46,000	4	8,000
Hungary	4	6,600	..	....
India	7	34,500	3	6,600
Iran (Persia)	2	168,000	1	65,500
Iraq	2	2,500	..	....
Italy	9	34,000	4	10,700
Japan	13	28,800	7	8,000
Latvia	1	200	..	....
Manchukuo	2	6,000	1	850
Mexico	8	106,300	3	17,000
Netherlands	1	10,000	1	9,000
Netherlands (Dutch) East Indies	9	137,500	3	26,000
West Indies	3	350,000	3	98,000
Norway	1	1,000	..	....
Peru	2	17,000	1	6,800
Poland	16	20,750	2	2,000
Rumania	42	240,050	7	35,850
Spain	1	1,500	..	....
Sweden	1	1,200	1	800
Trinidad	5	39,500	1	10,000
Union of South Africa	1	1,000	..	....
U. S. S. R.	10	517,300	7	65,500
United Kingdom	13	78,600	4	11,500
United States	496	3,815,470	191	466,200
Uruguay	1	5,000	1	1,200
Venezuela	6	25,000	..	....
Yugoslavia	2	3,400	1	1,000
Total	805	6,132,695	291	1,023,600

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SPAIN

Compania Arrendataria del Monopolio de Petroleos S.A., which has a monopoly on importation and distribution of petroleum products in Spain, is considering the construction of a refinery at Santander. The refinery if built will have a crude oil capacity of 5,000 bbls. daily with cracking facilities. The company is now endeavoring to close negotiations for a crude oil supply and has also made inquiries for refinery equipment.

The company at present has a refinery at Barcelona (Cornella) in Spain. The equipment of this plant is antiquated. It is used largely for the manufacture of lubricants. The company has placed an order for fractionating equipment to be installed at Barcelona (Morrot). This will be used in the manufacture of solvents, aviation gasoline and other special products.

Diversion Deprives Motorists

American motorists were deprived of about 20,000 miles of smooth, all-weather highways in 1934 by the diversion of gasoline taxes to other purposes than highway construction, according to a report of the Low Cost Roads Association.

The report, based on statistics compiled by the American Association of State Highway Officials, reveals that of the $565,027,000 in state gasoline taxes collected in the year, $94,357,000, or 16 per cent, was diverted to non-highway purposes. The diverted funds would have been sufficient to construct almost 20,000 miles of bituminous mat pavement at an average cost of $5,000 a mile.

Motorists in central western states, badly in need of added highway facilities to reduce hazardous congestion on existing systems, but whose legislatures ignored these needs were among the sufferers.

A list of amounts diverted in midwest states as compiled by the highway officials follows:

Arkansas	$260,000	Oklahoma	$3,181,000
Colorado	1,719,000	South Dakota	1,907,000
Illinois	8,115,000	Texas	7,887,000
Kansas	9,000	Wisconsin	3,163,000
Missouri	98,000		

New York had the worst record among the states in the matter of diversion, $29,322,000 in gasoline taxes being used for non-highway purposes.

Oklahoma Motorists

Tax burdened motorists in Oklahoma will get a break—they will not be subjected to a proposed tax of 20 cents each for the installation of anti-theft devices on auto license plates. The Oklahoma Tax Commission decided against the device, not of course to prevent additional taxes on the motorists, but because the proposed levy was deemed too difficult to collect. It was the first time on record in this state where $3,181,000 of the motorists' gasoline tax payments are diverted annually to other purposes than highway building, that motorists escaped any proposed device for additional taxation.

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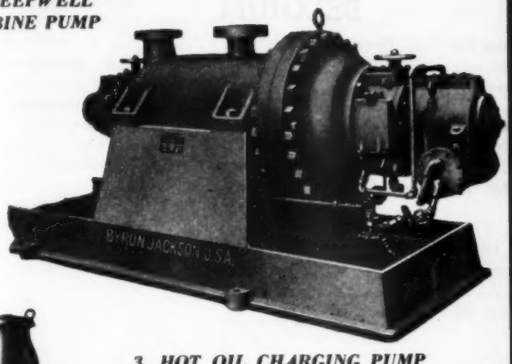
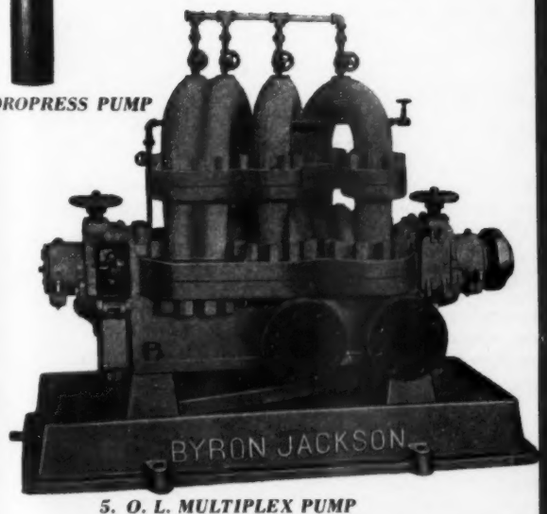


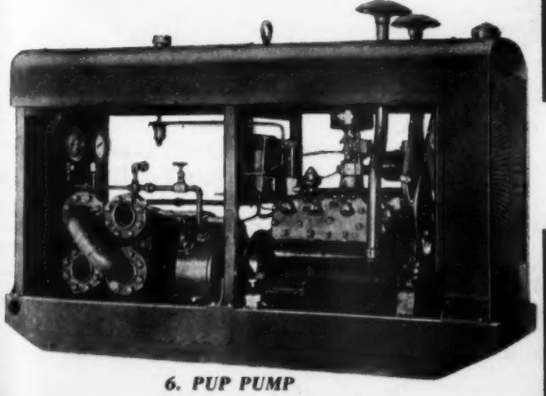
3. HOT OIL CHARGING PUMP

4. HYDROPRESS PUMP

2. BILTON PUMP



5. O. L. MULTIPLEX PUMP



6. PUP PUMP

BYRON JACKSON PUMPS

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1. Byron Jackson Deepwell Turbine Pumps for tube wells, insure a dependable, low-cost supply of water. They are made in a wide range of sizes to furnish from 50 to 10,000 gallons per minute, against heads up to 850 feet; built for direct connection to motors or steam turbines, and gear or belt drive for engines.
2. Byron Jackson Bilton Pumps combine a pump and motor in a single inexpensive, commercial unit to meet the demand for a low-priced, side-suction pump of small capacity. The unit structure eliminates misalignment; motors are splash proof; no bed plate is required.
3. Byron Jackson Hot Oil Charging Pumps use a Patented Double Case method of construction, a design with a simple cylindrical outer case having one circular joint and a longitudinally split inner case, providing accessibility for repairs without disturbing pipe connections or driver.

   The space between the inner and outer case is filled with oil at full discharge pressure, so that the forged steel outer case alone is subjected to tension stresses, while the inner case is under compression stresses only.
4. The Hydropress is a pump with a steel outer case and a longitudinally split inner volute, to give relatively low capacities at medium and high pressures, with the advantage of a smooth, non-pulsating flow. This design is rapidly replacing plunger pumps on capacities of 500 to 5000 barrels per day and pressures of 200 to 1500 pounds. The Hydropress is the only efficient, inexpensive, low capacity, high pressure centrifugal pump available for this class of work.
5. Oil Line Multiplex Pumps are furnished in two, four, or six-stage types for handling 10,000 to 45,000 barrels per day at pressures up to 1000 pounds per square inch. No balancing device is required; the horizontal split case permits removal of the rotating element without disturbing pipe connections or prime mover.
6. The Pick Up Pumping Unit - the PUP - is a portable unit combining flexibility, sturdiness, low initial and operating costs, light weight and high efficiency. Its primary application is for pipe line service, but it is ideal also for water supply, fire protection or any other service which can be performed by a gasoline engine driven pump, with a wide range of pressures and capacities.

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EVERY

Refineries in Foreign Countries

ARGENTINA

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Cia Astra, Buenos Aires:				
Comodoro Rivadavia	2,400	S	.....	
Compania Ferrocarrilera de Petroleo, Buenos Aires:				
Comodoro Rivadavia	8,000	S-C	2,000	Cross
"Itaca" Compania Argentina Para la Elaboracion de Productos Petroliferos, Buenos Aires:				
Campana	4,500	Comp.	1,000	Cross
Compania Nacional de Petroleo (Standard of N. J.), Buenos Aires:				
Campana	12,000	S-C	4,000	Tube & Tank
Bahia Blanca	2,500	S-C	1,000	Tube & Tank
Compania Petrolifera Andina, Buenos Aires:				
Mendoza	1,200	S-L	.....	
"Diadema Argentina," S.A. de Petroleo (Shell), Buenos Aires:				
Buenos Aires	20,000	S-C	14,400	Dubbs
"El Condor," Buenos Aires:				
Avellaneda (3 plants)	1,400	S-L	.....	
Compania "la Isaura" S.A., Buenos Aires:				
Bahia Blanca	2,000	S-C	850	Dubbs
La Petrolera Argentina, Buenos Aires:				
Avellaneda	500	S	.....	
Standard Oil Co. S.A., Buenos Aires:				
Embarcacion	500	S	.....	
Ultramar S.A. Petroleo Argentina, Buenos Aires:				
Buenos Aires	3,000	Comp.	2,000	de Florez
Yacimiento Petroliferos Fiscales (Argentine Government Oilfields), Buenos Aires:				
La Plata	20,000	Comp.	8,800	Cross
Comodoro Rivadavia	1,000	S	.....	
Plaza Huincul	700	S	.....	
Vespucio	300	S	.....	

AUSTRALIA

Commonwealth Oil Refineries, Ltd. (Anglo-Iranian), Melbourne:				
Laverton	2,500	S	.....	
Newport Oil Refinery, Ltd., Melbourne:				
Newport	100	L	.....	
Shell Co. of Australia, Ltd., Melbourne:				
Clyde, N.S.W.	2,500	S-C	800	Dubbs

AUSTRIA

Creditul Minier S.A. Roumaine pour le Developpement de L'Industrie Miniere, Bucarest:				
Korneuburg-Vienna	1,800	S	.....	
Droesing	500	S-L	.....	
Danubia Mineraloelindustrie A.G. (Gallia), Vienna:				
Vosendorf	500	S	.....	
David Fanto Co., Vienna:				
Lanzendorf	50	L	.....	
Korneuburger Mineraloel Raffinerie A.C., Korneuburg:				
Korneuburg	1,000		.....	
Aktiengesellschaft der Shell-Floridsdorfer Mineraloilfabrik, Vienna:				
Floridsdorf	2,500	S-L	.....	
Vacuum Oil Co., A.G. (Vienna), Vienna:				
Kagran	1,350	S-L	.....	
Reutgers Werke A.G., Angern				
Angern	450	S-L	.....	

BAHREIN ISLANDS

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Bahrein Petroleum Co.*—(subsidiary of Standard Oil Co. of Calif.):				
Bahrein Island (Persian Gulf)	200	S	.....	

*This company has announced it would build a 10,000-bbl. refinery on Bahrein Island.

BELGIUM

Belgian Cracking Co. S.A., Brussels:				
Langerbrugge	500	S-C	300	Dubbs
Belgo Petroleum Co., Brussels:				
Terdonck	1,200	S-C	1,000	Jenkins
British Lianosoff White Oil Co., Ltd., London England:				
Antwerp	200	A	.....	
Raffinerie Belge de Petroles, Antwerp:				
Antwerp	3,000	S-C	1,000	Jenkins
Raffineries et Distilleries Anversoises, Antwerp:				
Antwerp	400	S	.....	
Societe Chimique de Selzaete, Brussels:				
Selzaete	125	S	.....	
Redeventza Societe Anon., Belge, Antwerp:				
Antwerp	2,200	S	.....	

BELGIUM CONGO

Compagnie Financiere Belge des Petrole (Petrofina), Antwerp, Belgium:				
Leopoldville	250	S-C	150	Carburol

BOLIVIA

Standard Oil Co. of Bolivia (Standard of N. J.), Buenos Aires, Argentina:				
Sanadita	200	S	.....	
Camira	200	S	.....	

CANADA

Included in Annual Survey of North American refineries, including personnel, published March 28, 1935. Revised list will be published March 19, 1936.

CANARY ISLANDS (Spain)

Compania Espanola de Petroleos, S.A., Madrid, Spain:				
Santa Cruz de Teneriffe	5,000	S-C	2,000	Dubbs

CHILE

Cia de Salitre, Y.F.C. de Aqua Santa, Iquique:				
Iquique	300	S	.....	
Soc. Establecimentos Fuimicos, de Vena, Del Mar:				
De Vena, Del Mar	175	S	.....	

COLOMBIA

Tropical Oil Co., Pittsburgh, Pa., U.S.A.:				
Barranca Bermeja	6,000	S-L	.....	

CUBA

Standard Oil Co. of Cuba, New York City, U.S.A.:				
Belot	5,000	S-C	1,800	Tube & Tank

CZECHOSLOVAKIA

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Apollo Mineraloel Raffinerie A.G., Bratislava:				
Bratislava	1,800	S-C	1,100	Dubbs
Weikersdorf	400	S	.....	
Fanto-Werke Aktien-Gesellschaft, Prague-Smichov:				
Pardubice	2,500	S-L	.....	
Bohumin	1,500	S-L	.....	
Himmelbauer, Anton, & Co., Moravska, Ostrava:				
Moravska Ostrava, Moravia	500	L	.....	
Kralupska Raffinerie Mineralnich Oleju, Prague:				
Kralupy	750	S	.....	
Prava Hornoviddiecka Raffinerie Petroleza Ehrenburg & Co., Strazske:				
Strazske	100	S	.....	
Privozer Mineraloelwerke A.G., Nor. Ostrava:				
Nor. Ostrava-Privoz	1,000	S	.....	
Sudkarpatische Mineralol Raffinerie und Handels A.G., Mukacevo:				
Mukacevo	100	S	.....	
Vacuum Oil Co., S.A., Prague:				
Kolin	1,500	S-L	.....	
Weinberger & Ortner, Aemplin:				
Dolne Mihalany	75	S	.....	

ECUADOR

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Anglo-Ecuadorian Oilfields, Ltd., London, England:				
La Libertad	700	S	.....	
Ecuador Oilfields, Ltd., London, England:				
Cuativo	100	S	.....	
Refinery Viggiani, Salinas:				
Carolina	50	S	.....	

EGYPT

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Anglo-Egyptian Oilfields, Ltd., London, England:				
Suez	10,000	S-C-A	2,000	Dubbs
Raffinerie de Petrole du Government, Suez:				
Suez	1,500	S-A	.....	

FRANCE

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Brest Port Petrolier (sub. of Pechelbronn Soc. Anon d'Exploitations Minieres), Paris:				
Brest (Finistere)	2,000	S	.....	
Compagnie Francaise de Raffinage, Paris:				
Gonfreville l'Orcher	18,000	Comp.	8,800	Cross
Martigues (B.-du-Rh.)	8,000	S-C	5,900	Cross
Compagnie Industrielle des Petroles (Socony-Vacuum), Paris:				
Frontignan-Sete	3,000	S-C	2,000	Cross
Compagnie des Produits Chimiques et Raffineries de Berre, Paris:				
Berre (Bouches-du-Rhone)	5,000	Comp.	2,500	Cross
Les Consommateurs de Petrole, Paris:				
Donges (near St. Nazaire)	3,500	S	.....	
"Pechelbronn" Societe Anonyme d'Exploitations Minieres, Strasbourg (Bas-Rhin):				
Merkwiller-Pechelbronn (Bas-Rhin)	2,500	S-C	1,000	Winkler-Koch
Pechelbronn-Ouest, Soc. Anon. (sub. of above), Paris:				
Donges (Loire Inferieure)	2,000	S	.....	
Raffinerie de Petrole du Nord. Paris:				
Dunkirk	6,000	S	2,000	Winkler-Koch

See catalog listing in foreign language section for other RIDGID super-performance pipe tools.

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New York City

HUNT WIRE LINE CORE BARREL

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Raffineries de la Vacuum Oil Co., S.A.F., Paris:				
Port Jerome	6,500	Comp.	2,750	Cross
Societe Anonyme des Petroles Jupiter (Royal Dutch-Shell), Paris:				
Pauillac	10,000	S-C	7,000	Dubbs
Rouen	15,000	Comp.	7,000	Dubbs
Societe Lyonnaise de Schistes Bituminex, Paris:				
Autun	750	S-C	400	Dubbs
Societe de Raffinage des Huiles de Petrole (Anglo-Iranian), Paris:				
Courchelettes	5,000	Comp.	2,000	Cross
L'Avera	8,000	S-C	3,600	Cross
Societe des Raffineries de Petrole de la Gironde, Paris (Texas Co. owns interest):				
Bordeaux	6,300	S-C	5,000	Cross & Dubbs
Standard Franco-Americaine de Raffinage Soc. Anon., Paris:				
Port Jerome	20,000	Comp.	6,000	Tube & Tank

GERMANY

Danubia A.G. Fur Mineraloel-Industrie, Regensburg:				
Regensburg:	500	L	.....	
Deutsche Erdol-Raffinerie A. G., Hannover:				
Hannover	5,000	S-C	2,500	Dubbs
Deutsche Gasolin A.G., Berlin:				
Emmerich	700	S	.....	
Dollbergen	300	S	.....	
Deutsche Petroleum Aktiengesellschaft (D.P.A.G.); Schoeneberg-Berlin:				
Hamburg	1,200	S	.....	
Hannover	300	S	.....	
Rheinau	150	S	.....	
Regensburg	500	S	.....	
Deutsche Vacuum Oel Aktiengesellschaft, Hamburg:				
Osiebschausen b., Bremen	2,000	S-L	.....	
Wedel b., Schulau	1,700	S	.....	
Ebano Asphalt-werke A.G., Harburg:				
Harburg, Wilhelmsburg	8,000	A	.....	
Erdol-Raffinerie Salzbergen, G.m.b. H., Kassel:				
Durchsatz	1,000	S	.....	
Gewerkschaft Elwerath, Hannover:				
Misburg	2,500	S-C	1,000	Dubbs
ITAG, Internationale Tiefbohr-A.G., Celle i, H.:				
Petroleumhafen	8,000	Comp.	2,500	Winkler-Koch
Loeb, Max, Benzin-Benzol-Mineralolwerke, Koln-Braunsfeld:				
Koln-Braunsfeld	200	L	.....	
Mineraloiei und Asphaltwerke Attiengesellschaft, Hamburg:				
Ostermoor	1,000	S-L	.....	
Hamburg	1,500	S	.....	
Norddeutsche Mineraloi A.G.; Hannover:				
Dollbergen	200	S	.....	
Oelwerke Julius Schindler, G.m.b.H., Hamburg:				
Neuhof-Harburg-Wilhelmsburg-Nord (near Hamburg)	700	L	.....	
Rhenania-Ossag Mineralolwerke Akt.-Ges., Hamburg:				
Monheim	2,000	L	.....	
Hamburg-Grasbrook	2,000	L	.....	
Harburg-Wilhelmsburg	5,000	A	.....	
Harburg-Wilhelmsburg	1,200	S	.....	
Reisholz b. Dusseldorf	1,200	S	.....	
Freital b. Dresden	200	L	.....	
Regenburg	300	L	.....	
Schliemann's Ernest Oelwerke, Gesellschaft Mit Beschrankter Haftung, Hamburg:				
Wilhelmsburg	100	L	.....	
Hamburg	300	S-L	.....	
Westfalische Mineraloel-und Asphalt-Werke W. H. Schmitz Komm-Gesellschaft; Dortmund:				
Dortmund-Sud	150	L	.....	

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Chiksan Joints have been generally adopted by cement companies as standard equipment for this type of service.

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Fire hazards due to hose failure are practically eliminated with Chiksan All Metal Dock Hose. Increased speed of transferring cargo is insured by the higher permissible working pressure. Sizes 4", 6" and 8".

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Chiksan

CHIKSAN OIL TOOL CO. LIMITED

FULLERTON, CALIF. PHONE 1254 - PLANT AT BREA, CALIF. PHONE 199

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Zeller & Gmelin, Fislinger:				
Eislingen	100	L	.....	

* In addition to refineries shown in this list there are several small plants which in most cases are specialty plants which do not operate with crude oil but secure unfinished distillates from other refineries. There are also hydrogenation plants not operating with petroleum.

HUNGARY

Hazai Koolajipar Reszvemutarsasag. V., Budapest:				
Budapest X, Gyomroiut	1,000	S-L	.....	
Nyirbogdanyi Petroleumgyar Reszvenytarsgsag, Budapest:				
Nyirbogdany	300	S-L	.....	
Shell Koolaj Reszvenytarsasag, Budapest:				
Budapest-Csepel Harbor	2,200	S-L	.....	
Ungarische Fanto-Werke, Aktiengesellschaft, Budapest:				
Budapest	1,100	S-L	.....	
Vacuum Oil Co. R. T., Budapest:				
Fuxito	2,000	S-L	.....	

INDIA

Assam Oil Co., Ltd., London, England:				
Digboi	6,000	Comp.	1,600	Dubbs
Attock Oil Co., Ltd., London, England:				
Rawalpindi	1,500	S-L	.....	
British Burmah Petroleum Co., Ltd., Rangoon:				
Rangoon	2,500	S-C	2,000	Cross
Burmah Oil Co., Ltd., Gasgow, Scotland:				
Rangoon	20,000	Comp.	3,000	Dubbs
Indo-Burma Petroleum Co., Ltd., Rangoon:				
Seikgyi on Rangoon River	3,000	S-L	.....	
Kindat	1,000	S	.....	
United Refineries, Ltd., Rangoon:				
Thilwa, South of Rangoon	500	S	.....	

IRAN (Persia)

Anglo-Iranian Oil Co., Ltd., London, England:-				
Abadan Island	165,000	Comp.	65,500	Cross
Kermanshah	3,000	S	.....	

IRAQ

*Iraq Petroleum Co., Ltd., London, England:				
Baba Gurgur Area near Kirkuk.	1,500	S	.....	
Khanaquin Oil Co., Ltd., London, England:				
Khanaquin on Alwand River	1,000	S	.....	

*This company is building a stabilization unit in Kirkuk field. This will have a capacity of 100,000 bbls. daily. To be in operation latter part of 1936.

ITALY

"Aquila" S. A. Tecnico-Industriale (License granted by Italian government):				
Trieste	5,000	S-L	.....	
Azienda Generale Italiana Petroli, Rome:				
Venice	11,000	Comp.	3,100	Dubbs
Distillazione Italiana Combustibili Soc. Anon., Venice:				
Porto Marghera (near Venice)	4,000	S-L	.....	
Raffineria di Olii Minerili (A.G.I. P), Fiume:				
Trieste	1,600	S	.....	
Raffineria di Napoli, S.A.I., (Socony Vacuum), Rome:				
Naples	.....	S-C	2,000	Dubbs

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6. WALL SCRAPER—The MacClatchie Hydraulic Wall Scraper has 3 cutters and superior strength in its body. Its smooth running qualities and positive operation is responsible for the steadily increased demand for this tool during the past few months.

7. CEMENT HEAD—The favorite the world over. Equip them with MacClatchie Unions and Plug Valves for the safest and speediest cementing equipment.

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MacCLATCHIE MFG. COMPANY

COMPTON, CALIF. HOUSTON, TEXAS

PUMP PARTS SOLD BY ALL LEADING SUPPLY HOUSES

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Societa Italo Americana pel Petrolio, (Standard of New Jersey), Genoa:				
Trieste	2,000	S-L	.....	
Fornovo	1,200	S	.....	
Societa per l-Industria Italiana del Petrolio; Spezia (Parent Co. Nafta Societa Italiana pel Petroleio ed Affini):				
Spezia	5,000	S-C	4,000	Dubbs
*Vacuum Oil Co., S.A.T., Venice:				
Naples	4,200	Comp.	1,800	Own

*These plants authorized by Italian government. Vacuum plant under construction. Italian government has announced plans to build refinery at Bari. A.G.I.P. will have charge of plant if built.

JAPAN

Asahi Sekiyu Kabushiki Kaisha (Ashi Petroleum Co., Ltd.), Tokyo:				
Tokyo	250	S	.....	
Hikoshima, Jamaguchi	250	S	.....	
Imperial Japanese Navy:				
Kudamatsu	2,000	S-C	1,000	Cross
*Korean Petroleum Co., Korea:				
Mitsubishi Oil Co., Ltd., Tokyo:				
Ogimachi, Kawasaki City	5,000	Comp.	2,000	Cross
Nippon Oil Co., Ltd., Tokyo:				
Kashiwazaki, Niigata	2,800	S	.....	
Niigata, Niigata	2,800	Comp.	1,000	Cross
Akita, Akita	3,200	S	.....	
Tsurumi, Kanagawa	3,500	Comp.	1,000	Dubbs
Kudamatsu, Yamaguchi	3,500	Comp.	1,000	Cross
Karukawa, Hokkaido	300	S	.....	
Byoritsu, Taiwan (Formosa)	200	S	.....	
Ogura Oil Co., Tokyo:				
Ysurumi, Kanagawa	1,500	S	.....	
Tokyo	3,500	S-L	2,000	Jenkins-Cross

*Recently announced that 5,000 bbl. complete refinery would be built by company being organized at that time.

LATVIA

A. Oehlrich & Co., Ltd., Riga:				
Muehlgraben (near Riga)	200	S	.....	

MANCHUKUO (Manchuria)

*South Manchuria Railway Co.:				
Fushun	3,000	S-C	850	Dubbs
Manchukuo Oil Co.:				
Dairen	3,000	S	.....	

*Shale oil plant.

MEXICO

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NETHERLANDS

N. V. de Bataafsche Petroleum Maatschappij, The Hague (Royal Dutch Shell):				
Rotterdam	10,000	S-A-C	*9,000	Dubbs

*Under construction.

NETHERLANDS EAST INDIES

Borneo

de Bataafsche Pet. Mij., The Hague, Holland (Royal Dutch Shell):				
Balikpanan	35,000	Comp.	7,400	Dubbs

Ceram

Dordtsche Petroleum - Industrie Maatschappij (Royal Dutch Shell):				
Boela Bay	2,500	S	.....	

Java

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
de Bataafsche Pet. Mij. (Royal Dutch Shell), The Hague:				
Wonokromo	2,000	S	.....	
Tjepoe	7,000	S-C	600	Dubbs
Nederlandsche Koloniale Petroleum Maatschappij, The Hague, Holland (Standard-Vacuum):				
Kapoen	1,000	S	.....	

Sumatra

de Bataafsche Pet. Mij (Royal Dutch-Shell), The Hague, Holland:				
Pangkalan Brandon	12,000	S	.....	
Pladjoe, Palembang	20,000	S-L	.....	
Nederlandsche Koloniale Petroleum Maatschappij, The Hague, Holland (Standard Vacuum):				
Palembang	40,000	Comp.	18,000	Tube & Tank

Sarawak (British East Indies)

Sarawak Oil Fields, Ltd., Miri, Sarawak (Royal Dutch):				
Lutong	10,000	S-L	.....	

NETHERLANDS WEST INDIES

Aruba

Arend Petroleum Maatschappij, Willemstad, Curacao, Isle of Aruba: "Bruif" N.W. point of Island of Aruba	20,000	S-C	2,000	Dubbs
Lago Oil & Transport Co., Ltd., New York City, U.S.A. (Pan American Foreign Corp.):				
Aruba	160,000	S-C	24,000	Cross

Curacao

Curacaosche Petroleum Industrie Maatschappij, Emmastad, Curacao, D.W.I.:				
Emmastad	170,000	Comp.	72,000	Dubbs & Cross

NORWAY

Vallo Oljeraffineri A/S, Oslo:				
Oslo	1,000	S	.....	

PERU

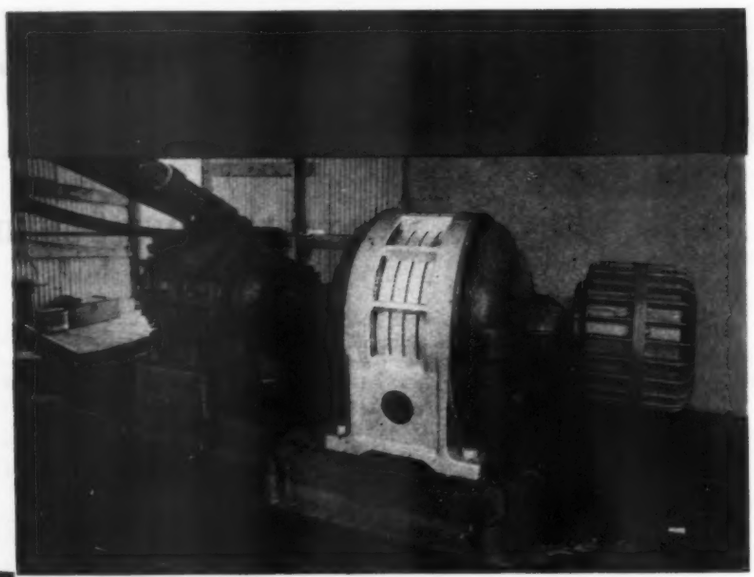
Establecimiento Industrial de Petroleo de Sorritos, Zorritos:				
Zorritos	1,000	S	.....	
International Petroleum Co., Ltd., Sarnia, Ontario, Canada:				
Talara	16,000	Comp.	6,800	Tube & Tank

POLAND*

Galicyjski Towarzystwo Naftowe "Galicja", S. A., Lwow:				
Drohobycz	3,000	Comp.	1,000	Cross
Galizische Karpathen Petroleum A. G. vorm Bergheim & MacGarvey, Lwow:				
Jedlice	1,200	S-L	.....	
Dziedzice	1,200	L	.....	
"Gazy Ziemne" Spolka Akcyjna dla Przemyslu Naftowego I Gazow Zem, Lwow:				
Zniesienie (near Lwow)	500	L	.....	
"Nafta" Spolka Akcyjna, Lwow:				
Drohobycz	1,200	S-L	.....	

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Jaslo, Industrial Oil Works "Gartenberg & Schreier" in Jaslo, Post Jaslo, Niegiowice, Poland:				
Niegiowice	1,500	S-L	.....	
"Limanowa" (Towarzystwo Naftowe "Limanowa" Spolka Z. Org. Odp.), Borysiaw:				
Limanowa	2,000	S-L	.....	
"Polmin" State Oil Works in Drohobycz, Lwow:				
Drohobycz	3,000	S-L	.....	
"Polskie Zwiazkowe Refiner je Alejow Skanych" (Polish United Oil Refineries), Lwow:				
Rychcice (near Drohobycz)	800	S-L	.....	
Trzebinia (near Cracow)	1,500	S-L	.....	
Rafinerja Nafty 'Gleboka" Spolka Z.O.O., Gleboka, near Sambor:				
Gleboka, near Sambor	100	S	.....	
Rafinerja Nafty I Fabryka Olejow Maszynowych M.H. Reich I Ska, Stryj:				
Stryj	250	S	.....	
Rafinerja Skawinska Zaklady Dla Przemyslu Oleju Skalnego, Griffel I Ska, Skawina:				
Skawina	300	S	.....	
Spolka Akcyjna Fanto, Lwow:				
Ustrzyki Dolne	1,000	S	.....	
Standard Nobel Co. in Poland, Ltd., Warsaw:				
Libusza	1,200	S-L	.....	
Vacuum Oil Co., Spolka Akcyjna, Dziedzice:				
Czechowice, Silesia	2,000	Comp.	1,000	Cross

*Several plants having capacity of a few barrels daily, operating part time, not listed. Most of these plants are finishing plants and do not operate with crude oil.



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The rise of American chemistry and chemical engineering, interpreted through its Exposition of Chemical Industries during the past 20 years, was brought to a new climax this year with the fifteenth exposition, held at Grand Central Palace, New York. Two hundred and fifty-seven exhibitors gave visual indication that the American chemical industry is depression proof. They portrayed the industry in terms of its basic principles and at the same time recognized the showmanship which the modern tempo demands. Exhibits were built to be interesting, not merely to inform. The dynamic superseded the static. Illumination was adapted to the eye of the visitor, and operating mechanisms were designed to tell the story even without words. All this simplified the problem of the chemist or business executive in hopes of glimpsing the two-year chemical advance of America in a period of a few hours.

The move toward the dynamic was supplemented by the fact that most of the exhibits were manned by personnel composed of seasoned veterans. Sometimes the presidents were present to explain the steps which their companies had taken during the past two years when the industrial outlook of the nation was so many times dimmed.

At the exposition in 1931, 22,000 were admitted by registration. In 1933 the figure was 33,000. For 1935 the figure has not yet been compiled, but it is estimated to be a big advance over any previous attendance record.

An exposition reflects materials, machines, and men. The American Chemical Society's exhibit this year struck a keynote when it called its industrial protegees, "The Children of Recovery." This contrasted stridently with a former appellation, "The Children of Depression."

In the field of petroleum technology one found organic liquids which had been obtained from the petroleum and gaseous hydrocarbons. Formerly such liquids were obtained only from coal tar. Made from the petroleum gases and on display were such aromatics as benzol and xylol.

The field of polymerization of waste gases from the cracking plants and from the natural gases is predicted to save the crude oil supply by a large figure each year. Polymerization is said to be the most important development since cracking.

The variety of chemical exhibits surpasses description. It is impossible to enumerate all of the products and specialties but a few can be pointed out—a new rosin compound for synthetic plastics, ethyl cellulose for use as a plastic, detergents for general cleaning and laundering with specialties for use in metal working plants.

Company Reorganized

The Oklahoma Contracting Corp., pipe line contractors, has reorganized with T. R. Jones, president, and W. G. Hanrahan, vice president, with headquarters at Dallas, Tex.

RUMANIA*

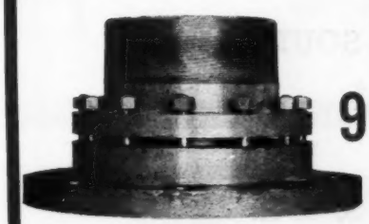
Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
Astra Romana S. A., Bucarest (Royal Dutch Shell):				
Ploesti	35,000	Comp.	8,000	Dubbs
Astra Romana-Xenia:				
Ploesti-Nord	6,000	S	.....	
"Carmen Petrol" Societate Anonima Romana Pentru Mine si Petrol, Bucarest:				
Targoviste	2,000	S	.....	
Colombia Societie Franco-Rumanine de Petrole, Bucarest:				
Ploesti	5,000	S-C	1,600	Dubbs
"Cometa" S.A.R. Pentru Industria si Comertul Petrolului, Bucarest:				
Ploesti	2,000	S	.....	
Concordia Societie Anonyme Rumaine pour l'Industrie du Petrole, Bucarest:				
Ploesti-Nord	31,000	Comp.	.....	
Creditul Miniere Societe Anonyme Rumaine pour le Developpement de l'Industrie Miniere, Bucarest:				
Brazi-Prahova	12,000	Comp.	3,500	Dubbs
Aurora-Baicoi	6,500	S	.....	
Dacia Romano Petroleum Synd., Ltd., Bucarest:				
Ploesti	6,500	S	.....	
Fratia:				
Ploesti-Sud	3,200	S	.....	
I Grigorescue S. A.:				
Targoviste	1,500	S	.....	
Industriile de Petrol Orsova-Tileagd Societate Anonima, Orsova:				
Orsova	1,000	S	.....	
Noris:				
Ploesti-Sud	1,350	S	.....	
"Petrol Block" Societe Anonima Romana, Bucarest:				
Ploesti (Standard)	12,000	S	.....	
Bucarest (Baneasa)	2,500	S	.....	
Petrol Latina, Bucarest:				
Plopeni-Prahova	1,000	S	.....	
"Petrolmina" Societate, Romana de Mine si Petrol, Bucarest:				
Ploesti	3,000	S	.....	
"Petrolul Bucaresti" S.A. Romana, Bucarest (controlled by Azienda Generale Italiana Petroli):				
Bucarest	5,000	S-C	3,750	Dubbs
Vacuum Oil Co. R.T., Bucharest:				
Brasov	3,000	S-L	.....	
"Photogen" Rafinarie de Petrol Societate Anonima, Brasov (sub. of Nederlandsche Petroleum Maatschappij "Photogen"):				
Brasov	1,300	S	.....	
"Redeventza" S.A. Pentru Exploatarea si Comertul Produselor Subsolului, Bucarest:				
Ploesti	5,000	S	.....	
Romano-Americana S.A. pour l'industrie, le Commerce et l-Exportation du Petrole, Bucarest: (Standard of New Jersey)				
Taleajen (near Ploesti)	30,000	Comp.	10,000	Tube & Tank
"Romano-Belgiana Depetrol" Societate Anonima, Bucarest:				
Ramnicul-Sarat "Venus"	1,000	S	.....	
Soc. Generala Mine & Petrol:				
Doicesti-Dambovita	2,500	S	.....	
Spies Petroleum Co., Ltd., London, England				
Ploesti	5,000	S	.....	
Steaua Romana Societe Anonyme pour l'ndustrie du Petrole, Bucarest:				
Campina	30,000	Comp.	5,500	Dubbs
Moinesti	1,700	S	.....	
Titian-Petrol:				
Bucarest	1,000	S	.....	

RECTORHEAD

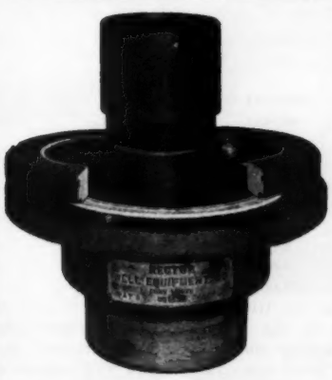
SUCCESSOR
to the Bradenhead

The RECTORHEAD is the foundation of your well if surface pipe is properly cemented. Though simple in design, it is complete in every detail for safe, convenient handling of casing. It embodies so many valuable features not found in conventional bradenheads that it has virtually become standard equipment in the Mid-Continent and Gulf Coast.

There are only 3 sections: *Bottom Flange, Recessed Coupling and Split Rings* as the supporting unit, and *Top Flange* as the packing unit. Recessed Coupling is held by Split Rings, bottom of which seat on beveled upper side of Bottom Flange, forming metal to metal seat. The RECTORHEAD is made in 6000, 3000 and 1500-lb. test pressures.



For full details write for RECTOR Catalog, or refer to your 1936 Composite Catalog.



9 REASONS WHY LEADING OIL MEN NOW PREFER THE RECTORHEAD

1. Repackable under high pressure, even though packing is burned away.
2. Provides against upward thrust of casing as well as supporting it.
3. No loss of tension when taking stretch in pipe.
4. All bottom flanges and drilling flanges same I.D. as pipe, not reducing area between strings; also permits drilling through head.
5. Pipe suspension point protected from heat, even though fire envelops the head.
6. Gets shut-off without putting men in the cellar.
7. Permits working of pipe while cementing.
8. Compactness of design requires less cellar space.
9. Pays for itself in the time it saves.

The RECTORHEAD is the product of Rector Well Equipment Co., Inc., Fort Worth, Texas, with district representatives at Houston, Midland, Pampa, Wichita Falls and Tulsa.

EXPORT REPRESENTATIVE:
L. C. Klein, 30 Rockefeller Plaza, New York, N. Y.

RECTORHEAD

Company and plant location—	Daily capacity bbls.	Type of plant	Capacity cracking process	Type of cracking process
"Unirea" Societate Anonima Romana de Petrole, Bucarest (Phoenix Oil & Transport Co., Ltd.):				
Ploesti	9,000	S-L	.....	
Ploesti (Orion S.A.)	14,000	Comp.	3,500	
*Several small topping plants operating part time not listed.				

SPAIN

Compania Arrendataria del Monopolio de Petroleos, Madrid:				
Barcelona	1,500	S	.....	

SWEDEN

A. Johnson & Co., Stockholm:				
Nynashamn	1,200	S-C	600	Dubbs

TRINIDAD

Trinidad Central Oilfields, Ltd., London, England:				
Claxton Bay	500	S	.....	
Trinidad Lake Asphalt Operating Co., Ltd., Philadelphia, Pa., U.S.A. (Sub. General Asphalt Co.):				
Brighton	1,000	A	.....	
Trinidad Leaseholds, Ltd., London, England:				
Pointe-a-Pierre	25,000	Comp.	10,000	Dubbs
United British Oilfields of Trinidad, Ltd., London, England (Anglo-Saxon Petroleum Co., Ltd.):				
Point Fortin	12,000	S-A	.....	
West India Oil Co., New York City, U.S.A.:				
Point d'Or	1,000	S	.....	

UNION OF SOUTH AFRICA

South African Torbanite Mining & Refining Co., Ltd., Johannesburg:				
Ermelo, Transvaal	1,000	S	.....	

U. S. S. R.

Azneft:		
Baku	180,000	9,000
Batoum	80,000	17,000
Grozneft:		
Grozjny	180,000	25,000
Touapse	40,000	6,000
Maineft:		
Krasnodar	18,000	.....
Aviatop:		
Konstantinovky	2,000	1,500
Gorky	1,500	.....
Habaroosk	2,000	3,000
Sredazneft:	1,800	.....
*Ufa, Barkerian Republic	12,000	4,000

*Under construction. Contract let by Glavneft, in general charge of refinery construction and operation in the U.S.S.R. Recent report showed several crude distillation and cracking units under construction at this time or assured for next year. In most cases these units will replace existing equipment and will not add to existing capacities.

†The cracking facilities are of the Vickers, Winkler-Koch and Jenkins types and those designed by the technical division of the Soviet oil administration. The new plant at Afa will have cracking facilities of the modified Gyro type.

UNITED KINGDOM

England

AGWI Petroleum Corp., Ltd., London:				
Fawley (near Southampton)	11,000	S-C	4,000	Modified Cross
Anglo-American Oil Co., Ltd., Westminster:				
Port Ellesmere	.....	Specialty plant		
Berry, Wiggins & Co., Ltd., Stratford, London:				
Kingsnorth-on-the-Medway	2,500	S-L	.....	
Weaste, near Manchester	1,500	S	.....	
Cory Brothers & Co., Ltd., London:				
Coryton	4,500	S-C	2,000	Cross
Herbert Green & Co., Ltd., London:				
East Halton, Lincolnshire	1,000	L	.....	
Lobitos Oilfields, Ltd., London:				
Ellesmere Port (Stanlow)	4,000	S	.....	
London and Thames Haven Oil Wharves, Ltd., London:				
Silvertown, Thames Haven, Essex	18,000	S-L	.....	
Major & Co., Ltd., London:				
Hull	1,000	S	.....	
Medway Oil & Storage Co., Ltd., London:				
Isle of Grain, Kent	3,500	S-C	2,000	Cross
Shell Refineries, Ltd., London:				
Shell Haven	7,000	S-L	.....	

Irish Free State

Cork Harbour Oil Wharves, Ltd., London:				
Haulbowline, Cobh	600	S	.....	

Scotland

Shell Refineries, Ltd., London:				
Ardrossan, Ayrshire	3,000	S-L	.....	
Scottish Oils, Ltd., (controlled by Anglo-Iranian Oil Co., Ltd.) Glasgow:				
Grangemouth (near Edinburgh)	15,000	S-L	.....	
Uphall (near Edinburgh)	2,500	S-L	.....	

Wales

National oil Refineries, Ltd., (Anglo-Iranian Oil Co., Ltd.), London:				
Llandarcy (near Swansea)	22,000	Comp.	1,500 2,000	Dubbs and Cross

URUGUAY

Administracion Nacionale de Combustibles Alcohol y Portland, Montevideo:				
*Montevideo	5,000	Comp.	1,200	Dubbs
*Plant under construction.				

VENEZUELA

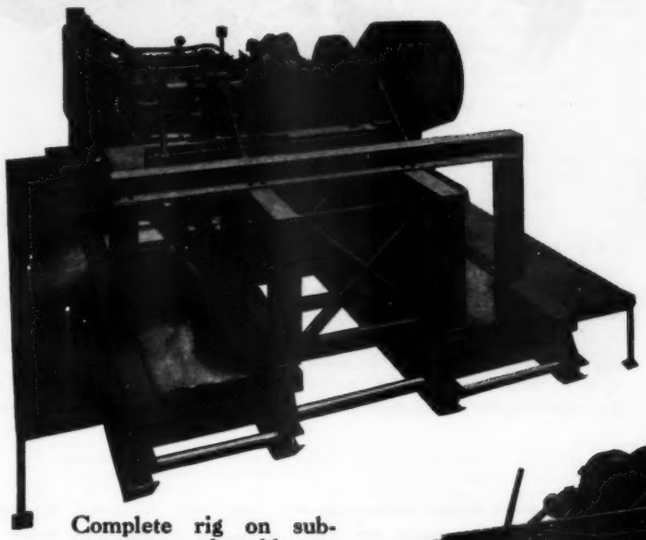
Caribbean Petroleum Co., New York City, U.S.A. (Royal Dutch):				
San Lorenzo	16,000	S	.....	
Colon Development Co., Ltd., New York City, U.S.A.:				
Tarra Field	600	S	.....	
Lago Petroleum Corp., New York City, U.S.A. (Pan American Foreign Corp.):				
La Salina	2,500	S	.....	
La Arriaga	1,200	S	.....	
Standard Oil Co. of Venezuela (Creole), New York City, U.S.A.:				
Caripito	3,500	S	.....	
Venezuelan Gulf Co., Pittsburgh, Pa., U.S.A.:				
Cabibmas	1,200	S	.....	

YUGOSLAVIA

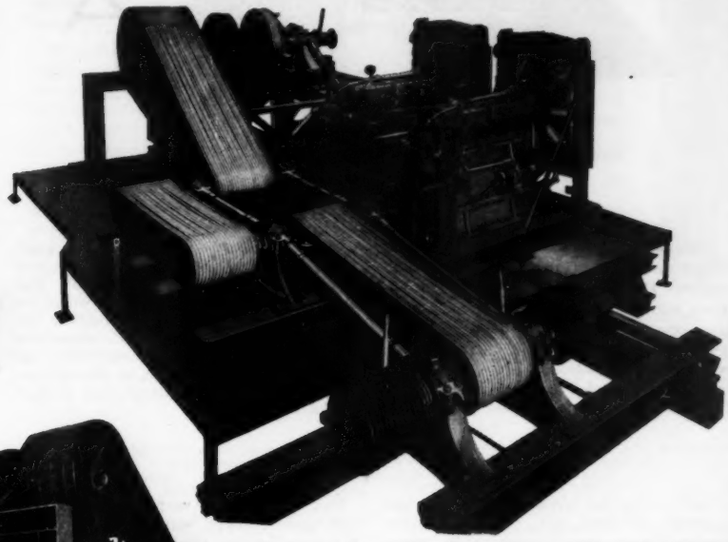
Anglo-Jugoslawische Petroleum A. G. fur Raffinierung von Petroleum und Anderen Bituminosen Stoffen, Zagreb (Royal Dutch):				
Caprag (on Kupa River)	1,400	S-L	.....	
Standard-Vacuum Oil Co. of Yugoslavia, Zagreb:				
Bosanski Brod	2,000	S-C	1,000	

WITH THESE PORTABLE RIGS

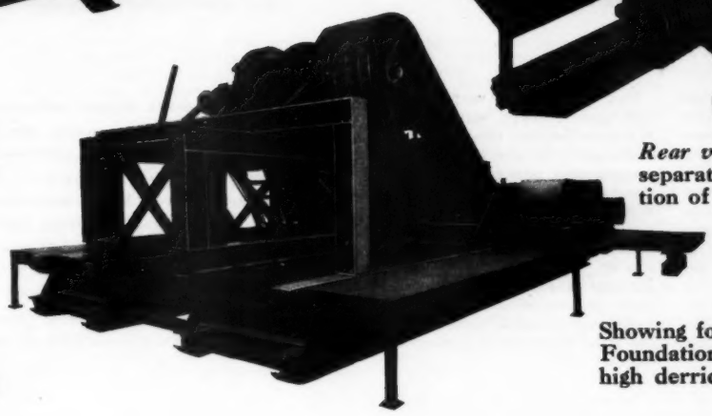
Model B-100



Complete rig on substructure adaptable to standard drawworks and derrick.



Rear view: Pump countershaft on separate foundation allows operation of two pumps.



Showing foundation and walkways. Foundation shown is for use with high derricks.

for 7000 feet . . . or deeper

Here's the deluxe drilling setup of the day. Due to low operating costs and portability, it has won the immediate favor of operators wherever used. It comprises, in the main, the following units:

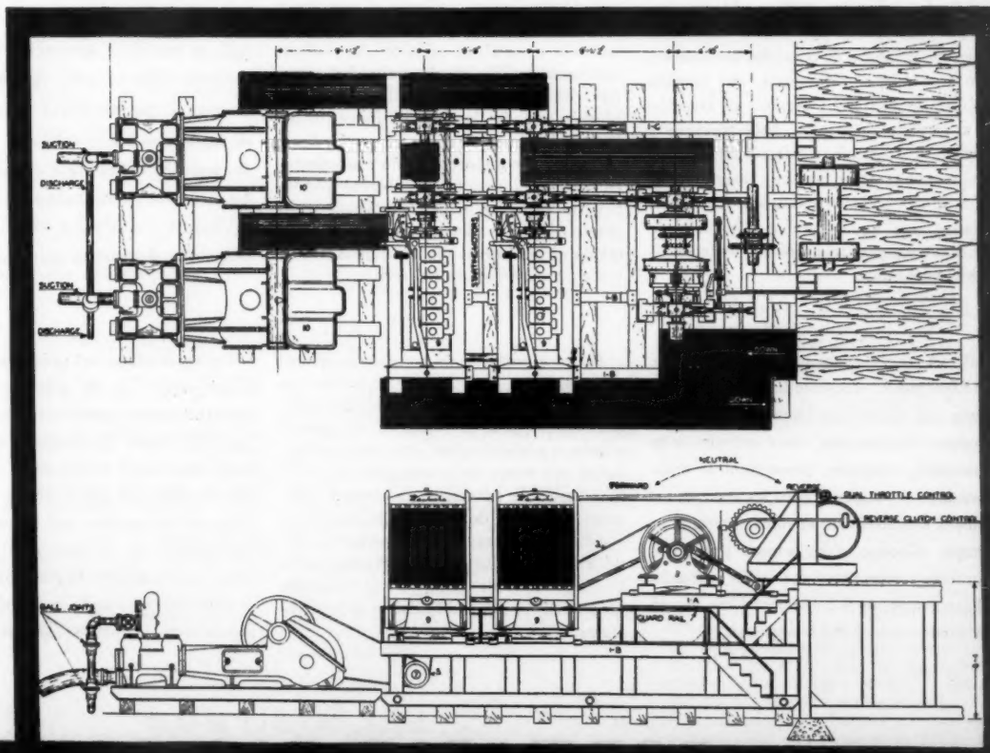
Two engines with clutches, outboard bearings and Vee belt drives—

Reverse clutch, which transmits power from engines to drawworks—

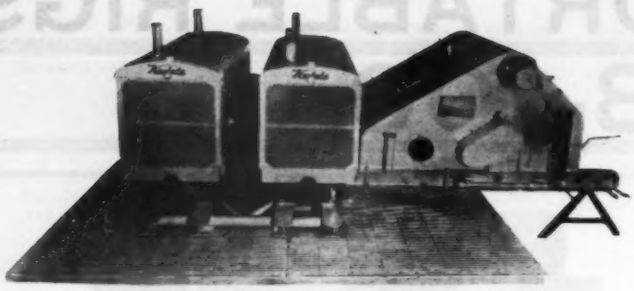
Countershaft with pulleys, allowing operation of two pumps—

Substructure designed and built so as to accommodate ground level derricks, medium height, or extra high derrick foundation without any alteration.

Descriptive Bulletin B-100, covering full details of construction and operation, is now available to you.



COMPLIMENTS
EXPORTS CORPORATION



Model 876 Rig

Model G-500 Rig

Designed for drilling to 5,000 ft. Uses either gasoline, natural gas or diesel oil engines. Consists of draw works, two engines with compound drive, allowing compounding of engines into draw works or pumps, substructure and pump. Draw works is fully enclosed, force feed lubricated; watercooled brakes; free rolling drum mounted on four roller bearings.

Six-inch drum shaft, four forward, three reverse speeds; heavy duty transmission; roller bearing throughout; high speed roller chain and heat treated cut sprockets on all drives; Waukesha engines of ample horsepower; pump size 6x16" or equivalent; air controlled engine clutches; all controls at driller's position; water pump built on side of draw works for brakes.

This rig is built for geophysical and structure work. It is built on a truck and uses power of truck motor for hoist, rotary and pump. The mast is hinged so it can easily be swung into place on arrival at location. Rotary is mounted on platform of mast and engages with drive pinion under truck. All engine controls at Driller's position. Cast steel drum flanges, $2\frac{3}{16}$" drum shaft, roller bearings on drum, friction clutches on all drives, $1\frac{11}{16}$" line shaft, pump size, 4x6", $\frac{3}{4}$" pitch roller chain throughout, 22-ft. mast, sixteen speeds on rotary and drum, four on pump, 19" steel rotary.

Эти установки сконструированы для бурения до 5000 фут. Они снабжены газолиновыми двигателями, либо моторами работающими естественным газом, или двигателями для дизельного топлива. Они состоят из лебедок, двух двигателей с комбинированным приводом, что дает возможность включать оба двигателя для привода лебедок или насосов, на суперструктуры и насоса. Лебедки совершенно закрытого типа, с принудительной смазкой; тормоза с водяным охлаждением; легко вращающиеся барабаны монтированные на четырех роликовых подшипниках.

Вал барабана диаметром в шесть дюймов имеет четыре передних скорости и три реверсивных скорости; трансмиссия приспособлена для тяжелой работы; все подшипники роликовые; все приводы состоят из быстроходных роликовых цепей и термически обработанных шестерен; двигатели Waukesha с большим запасом мощности; насосы размером 6" x 16" или эквивалентные; воздушные сцепные муфты у двигателей; весь контроль производится от того места, где находится буровой мастер; водяной насос для тормозов находится сбоку лебедок.

Эта установка служит для геофизических и строительных работ. Она монтирована на грузовике, причем мотор грузовика приводит в движение лебедку, ротор и насос. Мачта подвешена так, что по прибытии на место работ, она легко поворачивается в должное положение. Ротор установлен на платформе мачты и работает от шестерики, расположенной под платформой грузовика. Все механизмы управляются от того места, где находится буровой мастер. Фланцы барабанов из литой стали, вал барабана диаметром в $2^{3}/_{16}$", подшипники барабана роликового типа, все приводы снабжены фрикционными муфтами, приводный вал диаметром в $1^{11}/_{16}$", размер насоса 4" x 6", роликовые цепи имеют шаг в $\frac{3}{4}$", длина мачты 22 фута, ротор и барабан имеют шестнадцать скоростей, на них четыре для насоса, диаметр ротора 19".

Proyectado para perforaciones hasta de 5.000 pies. Emplea motores de gasolina, de gas natural o de tipo diésel. Consta de máquina giratoria de tracción, dos motores con transmisión compuesta, que permite aplicar los motores a servicio de tracción o a servicio de bomba, subestructura y bomba. La máquina giratoria de tracción está completamente tapada y tiene lubricación de alimentación mecánica, frenos enfriados por agua, tambor giratorio de fácil movimiento, montado en cuatro cojinetes de rodillos.

Eje de tambor de seis pulgadas, cuatro velocidades hacia adelante y tres hacia atrás; transmisión de servicio pesado; montaje general en cojinetes de rodillos; cadena de rodillos de alta velocidad y ruedas con dientes cortados de tratamiento térmico en todas las transmisiones; motor Waukesha de amplia fuerza motríz; bomba de 6x16" o de otro tamaño equivalente; embragues de motor con gobierno neumático; todos los controles o gobiernos en el puesto del perforador; bomba de agua instalada al lado de la máquina giratoria de tracción, para enfriar los frenos.

Esta instalación se construye para trabajo geofísico y de estructura. Está montada en camión y aprovecha el motor del vehículo para la grúa, la rotatoria y la bomba. El poste o mástil está abisagrado, de modo que puede colocarse en posición fácilmente a la llegada al punto de trabajo. La rotatoria va montada en la plataforma del mástil y se conecta con un piñón de propulsión debajo del camión. Todos los gobiernos o controles del motor están en el puesto del perforador. Rebordes de tambor de acero fundido, eje de tambor de $2\frac{3}{16}$", cojinetes de rodillos en el tambor, embragues de fricción en todas las transmisiones, árbol transmisor de $1\frac{11}{16}$", bomba de 4x6", cadena de rodillos con paso de $\frac{3}{4}$", poste o mástil de 22 pies, diez y seis velocidades en la rotatoria y el tambor, cuatro en la bomba, rotatoria de acero de 19".

Prévu pour forages jusqu'à concurrence de 5.000 pieds. Emploie les moteurs à essence, gaz naturel ou Diesel. Consiste de groupes d'épuisement, deux moteurs avec commande composée, permettant le compoundage des moteurs dans les groupes ou pompes d'épuisement, la substructure et la pompe. Groupe d'épuisement tout clos, à graissage sous pression; freins refroidis à l'eau; tambour à roulement libre monté sur quatre coussinets à rouleaux.

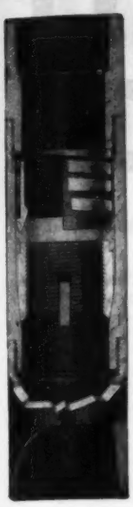
Arbre à tambour de six pouces, quatre vitesses avant, trois arrière; transmission de service dur; roulements à rouleaux uniquement; chaîne à rouleaux de grande vitesse et pignons taillés à traitement thermique sur toutes les commandes; moteurs Waukesha de puissance amplement suffisante; grandeur de pompe 6x16 pouces ou équivalent; embrayages de moteur à contrôle d'air; toutes les commandes à la position du foreur; pompe à eau construite sur le côté du grope d'épuisement pour les freins.

Cet appareillage est prévu pour travaux géophysiques et de gisements. Il est construit sur un camion et emploie l'énergie d'un moteur de camion pour le palan, le groupe rotatif et la pompe. Le mât en est articulé afin qu'on puisse facilement l'amener en position par pivotement une fois arrivé sur le chantier. Le groupe rotatif est monté sur la plateforme du mât et entre en prise avec le pignon de commande sous le camion. Toutes les commandes du moteur sont à la position du foreur. Brides de tambour en acier coulé, arbre de tambour de $2\frac{3}{16}$ pouces, coussinets à rouleaux sur le tambour, embrayages à friction sur toutes les commandes, arbre en ligne de $1\frac{11}{16}$ pouce, dimensions de la pompe 4x6 pouces, chaîne articulée à rouleaux de $\frac{3}{4}$ de pouce uniquement, mât de 22 pieds, seize vitesse sur le groupe rotatif et le tambour, quatre sur la pompe, groupe rotatif d'acier de 19 pouces.

PORTABLE RIG COMPANY

Headquarters Office and Plant: **HOUSTON, TEXAS, U.S.A.**
Export: **30 ROCKEFELLER PLAZA, NEW YORK CITY.**

AMERICAN RELEASING AND CIRCULATING OVERSHOT



This tool is especially designed to catch drill pipe, coupling or tool joints. The overshot releases from any point. Slips are keyed in the bowl and have a left hand thread. They release by rotating to the right.

Special slips made to catch worn tool joints or drill pipe for use with standard overshot. The standard guide is interchangeable with wall hook and milling shoe. These features save many a run in and out of the hole.

When the fish is caught, the rubber packer makes a tight joint between the overshot and fish which assures circulation. This tool has proven successful in both deep and shallow fields.

Этот инструмент спроектирован специально для вылавливания бурильных труб, муфт и соединительных замков. Овершот может быть освобожден в любом месте. Слипсы имеют левую резьбу и укреплены в воронке при помощи шпонок. Они освобождают захваченный предмет при вращении в правую сторону. Имеются специальные слипы для вылавливания сработанных соединительных замков и бурильных труб. Эти слипы применяются со стандартным овершотом. Стандартный направляющий башмак взаимозаменяем с боковым крючком, а также с фрезерным башмаком. Благодаря такой взаимозаменяемости сокращается число спусков инструмента в скважину.

Когда предмет захвачен, то пространство между ним и овершотом плотно заполняется резиновой набивкой, благодаря чему обеспечивается правильная циркуляция грязевого раствора. Этот овершот применяется одинаково успешно как при глубоком бурении, так и при бурении на небольшие глубины.

La Pescadora American es una herramienta destinada especialmente para agarrar tubos, acoplamientos o herramientas dentro de los pozos. Dicha herramienta puede soltar lo que agarra a cualquiera altura. Sus piezas deslizantes están enchavetadas a la parte cóncava y tiene rosca de mano izquierda. Sueltan haciéndolas girar a la derecha. Las piezas deslizantes sirven para pescar uniones de tubos y herramientas desgastadas. La pieza que sirve de guía se puede substituir por una herramienta de gancho y zapata perforada. Este detalle ahorra tener que sacar y meter varias veces la herramienta.

Cuando la Pescadora ha agarrado, la empaquetadura de caucho, forma una unión hermética, entre la herramienta y la pieza pescada, quedando libre el movimiento giratorio.

Esta herramienta ha dado resultados muy satisfactorios en perforaciones profundas y en las poco profundas..

Ce Repêcheur Américain est destiné spécialement à attraper dans les puits les tuyaux de forage, les accouplements ou autres outils. Il peut libérer l'objet saisi en tout point. Il porte des coulisseaux clavetés sur sa partie concave et filetés à gauche. La libération des objets se fait par rotation vers la droite. Il existe des coulisseaux spéciaux pour repêcher les outils usés. La pièce-guide standard, le crochet mural et le sabot de forage sont interchangeables. Ces caractéristiques éliminent la nécessité de sortir fréquemment l'appareil du puits.

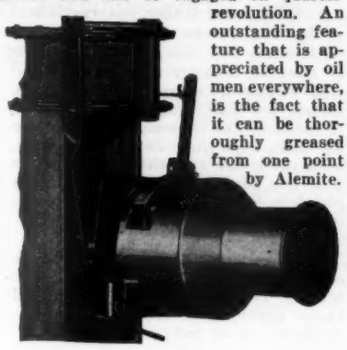
Une fois l'objet à repêcher saisi, la garniture de caoutchouc constitue un joint hermétique entre le repêcheur et cet objet, ce qui assure la circulation. Cet outil a donné entière satisfaction, tant pour les puits profonds que pour ceux de faible profondeur.

AMERICAN AUTOMATIC CATHEAD

In the American Automatic Cathead, we offer operators a product that is simple in construction, only five working parts, yet does the job perfectly.

All the movable parts of this cathead are housed and mounted on the spool which keys on the line shaft. The clutches have four-point contact and two-point disengagement. There are twelve square inches of clutching face when engaged.

The American Cathead has a 36-inch stroke and can be engaged on quarter revolution. An outstanding feature that is appreciated by oil men everywhere, is the fact that it can be thoroughly greased from one point by Alemite.



Автоматическая лебедка для оттяжки, известная под названием "American Automatic Cathead" отличается простотою своей конструкции; несмотря на это она работает чрезвычайно удовлетворительно.

Все двужущиеся части этой лебедки заключены в кожух и насажены на катушку, которая в свою очередь укреплена шпонками на приводном валу. При включении муфты кулачки захватывают в четырех пунктах, причем общая площадь захвата составляет 12 кв. дюймов. Выключение муфты происходит в двух пунктах.

Ход лебедки при одном обороте составляет 36 дюймов и ее можно включать на протяжении четверти оборота. Характерное преимущество лебедки, завоевавшее прекрасную репутацию среди нефтяников, заключается в том, что вся смазка салом производится под давлением и при помощи одной масленки.

El Torno American automático que ofrecemos es un producto de construcción sencilla, que sólo tiene cinco piezas movibles y trabaja a perfección.

Todas las piezas movibles de esta máquina están alojadas y montadas en un carrete enchavetado al eje. Los embragues tienen cuatro puntos de contacto y dos puntos de desprendimiento. Cuando está hecho el embrague la superficie de contacto es de 12 pulgadas cuadradas.

El Torno American tiene carrera de 36 pulgadas y puede embragarse con sólo darle un cuarto de vuelta. Un detalle sobresaliente, que aprecian los petroleros, es que puede engrasarse perfectamente con Alemite desde un solo punto.

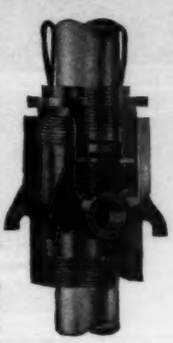
Ce Treuil Américain Automatique est un appareil d'une construction simple, ne comportant que cinq organes mobiles, mais travaillant parfaitement.

Toutes les pièces mobiles sont logées et montées sur la bobine clavetée sur l'arbre de transmission. Les embrayages ont quatre points de contact et deux points de dégagement. Une fois engagée, la surface d'embrayage est de douze pouces carrés.

Le Treuil Américain a une course de 36 pouces et peut s'engager sur un quart de révolution. Une caractéristique saillante très appréciée dans l'industrie pétrolière réside dans son graissage qui peut s'effectuer parfaitement avec Alemite d'un seul point.

AMERICAN CASING SUSPENDER AND BLOWOUT PREVENTER

This tool was especially designed to prevent blowouts between strings of casing, and to allow suspension of casing at setting points.



Equipped with a special composition packing, it will resist salt and sulphur water found in so many fields.

The body of the suspender is a one-piece bowl which permits tie-downs to be made to the four ears without damage to the special packing because of connection necessary as in some of the older types. Tested to 10,000 pounds pressure. The bowl has a male A.P.I. casing connection on top of body which makes it possible to screw on swedge nipple or make any other desired connection.

Этот инструмент сконструирован специально для предотвращения взрывов между колоннами обсадных труб и для подвешивания этих колон на требуемой глубине.

Набивка этого инструмента сделана из специальной композиции, сопротивляющейся действию солей и сернистых вод, часто встречающихся во многих нефтяных районах.

Корпус инструмента представляет собою воронку, сделанную из одного куска и снабженную четырмя ушками для прикрепления канатов. Такое устройство предохраняет набивку от повреждений, каковые повреждения часто случаются с инструментами некоторых других типов. Испытание инструмента производится под давлением в 10.000 англофунтов. Воронка на своем верхнем конце снабжена наружной стандартной нарезкой A.P.I., благодаря чему этот инструмент можно свинчивать с переводным ниппелем или с другим стандартным соединителем.

El suspendedor y eliminador de expulsiones violentas es una herramienta destinada para evitar las expulsiones violentas entre las tuberías de revestimiento y sirve para suspender las tuberías.

Como está provisto de empaquetadura especial, resiste la acción del agua salada o sulfurosa que con frecuencia se encuentra en los campos petrolíferos. El cuerpo de esta herramienta es una pieza cóncava con cuatro orejas que penetran hacia abajo sin dañar la empaquetadura, como sucede en los suspendedores antiguos. Está probado a presión de 10.000 libras.

La parte cóncava en su parte superior tiene un macho de conexión A. P. I. que permite atornillar la herramienta a una boquilla o hacer cualquiera otra conexión.

Ce Suspenseur et Eliminateur des expulsions violantes est un appareil destiné à prévenir les expulsions violentes entre les rangées de tubage, et de permettre la suspension des tubages.

Muni d'une garniture de composition spéciale, il peut résister à l'eau salée ou sulfureuse si fréquente dans les terrains pétroliers. Le corps du suspenseur est une partie concave à quatre oreilles qui pénètrent vers le bas sans endommager la garniture spéciale, comme c'est le cas dans les modèles anciens. Essayé sous une pression de 10.000 lbs. La partie concave possède un raccord mâle A. P. I. à sa partie supérieure, qui permet de visser sur un raccord de réduction ou sur tout autre raccord.

AMERICAN RELEASING AND CIRCULATING SPEAR

One of the most ruggedly and simply constructed tools in the oil fields is the American Releasing and Circulating Spear, which is manufactured by the American Iron and Machine Works Co., Oklahoma City.

The American Spear has a hollow stem for fluid circulation. Another feature is the shoulder on the releasing nut which slides vertically in the stem and key. The box of the slip is threaded righthand, which allows a quick, easy release.

The spear slip is a solid ring at the top end with the lower part split for expansion of the gripping section. The mandrel will rotate on the stem which minimizes friction on the releasing spear. It can be furnished with or without rubber packer for circulation. Will catch any size tubing or casing.

Труболовка, известная под названием "American Releasing and Circulating Spear", отличается чрезвычайной простотой и прочностью своей конструкции. Она изготовляется фирмой American Iron and Machine Works Co., Oklahoma City.

Этот инструмент имеет полый отвод для циркуляции грязевого раствора. Другой его особенностью является заплечик на освобождающей гайке, которая скользит на шпонке по стволу труболовки. Корпус слипсов снабжен левой нарезкой, благодаря чему захваченную трубу можно быстро и легко освободить.

Верхняя часть слипса труболовки имеет сплошную кольцеобразную форму. В нижней части слипса это кольцо имеет продольные сквозные прорези, что, при захвате трубы, дает возможность слипсу расшириться. Корпус труборезки свободно вращается вокруг ствола, благодаря чему трение о трубы доведено до минимума. Труборезка может быть поставлена с резиновым циркуляционным пакером или без такового. Она пригодна для ловли бурильных и насосных труб любого размера.

Al Arpón American giratorio y de desprendimiento es la herramienta más sencillamente construída en terrenos petrolíferos. La American Iron and Machine Works Co., Oklahoma City fabrica esta herramienta.

El Arpón American tiene vástago hueco para dejar libre la circulación del líquido. Otro de sus detalles es el reborde en la tuerca de desprendimiento, la que se desliza verticalmente en el vástago y la chaveta.

La caja de la pieza deslizante tiene rosca de mano derecha, lo que facilita el despredimiento de la herramienta.

La pieza deslizante del Arpón es un anillo macizo en la parte superior, que tiene la parte inferior hendida para la expansión de la sección que agarra. El mandril gira con el vástago, lo que disminuye el rozamiento en la herramienta. Se suministra con o sin empaquetadura de caucho para la libre circulación del líquido. Pesca tubos de cualquiera dimensión.

Ce Harpon Amfflricain est un des outils de prospection pétrolière les plus solides et les plus simplement construits; it est fabriqué par la American Iron and Machine Works Co., Oklahoma City.

Le Harpon Américain comporte une tige creuse pour la circulation du liquide. Il possède, en outre, un rebord sur l'écrou de dégagement qui glisse verticalement dans la tige et la clavette. La boite du coulisseau est filetée à droite, ce qui permet un dégagement rapide et aisé.

Le coulisseau de harpon consiste en un anneau solide au sommet et fendu à la base pour permettre l'expansion du dispositif d'accrochage. Le mandrin tournera sur la tige, ce qui réduit le frottement sur le harpon au minimum. On le fournit muni ou non muni d'une garniture de caoutchouc pour la circulation. Peut attraper les tubages de toutes dimensions.

Write for further information

AMERICAN IRON & MACHINE WORKS CO.

P. O. Box 1177 **Oklahoma City, Oklahoma, U. S. A.**

PUMPS BUILT FOR THE OIL

For 20 years GASO has specialized in building pumps exclusively for the oil industry and thus designed to exactly meet oil industry requirements. All Gaso Pumps are characterized by sturdy design, few parts and rugged strength. A complete line of pumps is offered for oil field, pipe line and refinery use, with particular attention to pumps for pipe line service. GASO also offers a complete line of extra-rugged pipe line fittings.

Number 201. Rod Pump. Used in connection with rod line or shackle line between power and well, or connected to the power direct with a pitman. Capacity 31 to 41 bbls. per hour.

Number 301. Piston Power Pump (Jerker Pattern). Widely used where a push and pull or crank power can be utilized. Capacities 32 to 157 bbls. per hour, at 750 to 300 lbs. pressure.

Number 601. Walking Beam Pump for oil or water. Designed for 400 and 600-pound working pressures. Capacities 30 to 55 bbls. per hour.

Number 604. Walking Beam Pump for gas or vacuum. Will stand hard usage.

Number 1844. Power Pump Unit with combination Gas and Gasoline Engine. Capacities from 50 bbls. per hour at 650 lbs. pressure, to 128 bbls. at 350 lbs. pressure.

Number 1509. All Timken Bearing Pump. Capacities from 63 bbls. per hour at 800 lbs. working pressure, to 250 lbs. at 250 lbs. pressure.

Number 2019. Portable Pumping Plant. Capacities from 63 bbls. per hour at 800 lbs. working pressure to 250 lbs. at 250 lbs. pressure.

Number 1740. Power Pump with "V" Rope Drive from Natural Gas and Gasoline Engine. Capacities 54 bbls. per hour at 1400 lbs. working pressure, to 250 bbls. at 600 lbs. pressure.

Number 1741. Power Pump with Diesel Engine drive. For long oil or water lines. Capacities 250 lbs. per hour at 600 lbs. working pressure, to 502 bbls. at 300 lbs. working pressure.

Number 1742. Interchangeable Liner Pump, Side Pot Type, driven by Electric Motor. Capacities from 54 bbls. per hour at 1400 lbs. pressure, to 250 bbls. at 600 lbs. pressure.

Number 1931. Pump for Water Systems, Gathering Lines or Booster Stations. Admirably suited for suction service. Capacities from 377 bbls. per hour at 225 lbs. pressure, to 1045 bbls. per hour at 175 lbs. pressure.

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Pompes Construites Exclusivement Pour L'Industrie Du Pétrole

Depuis 20 ans, GASO est spécialisé dans la construction des pompes exclusivement destinées à l'industries du pétrole, et, partant, répondant rigoureusement aux exigences de l'industries pétrolière. Toutes les pompes Gaso se signalent par la construction robuste, le petit nombre d'organes et la résistance en service. Il en est offert une série complète pour le service des champs de pétrole, des canalisations de transport et le raffinement, avec un choix particulièrement bien monté pour le service des canalisations de transport. GASO offre aussi une série complète de garnitures de conduites extra-robustes.

Numéro 201. Pompe à tige. S'emploie en relation avec les conduites à tiges ou à jumelles entre le groupe-moteur et le puits, ou encore reliée directement au groupe-moteur au moyen d'une bielle le connexion. Débit de 31 à 41 barils à l'heure.

Numéro 301. Autopompe à piston (Type Jerker). S'emploie couramment chaque fois qu'on peut faire emploi d'un groupe à manivelle ou tire et pousse. Débits de 32 à 157 barils à l'heure, à une pression de 750 lbs. à 300 lbs.

Numéro 601. Pompe à culbuteur de soupape pour pétrole ou eau. Prévue pour des pressions de travail de 400 et 600 lbs. Débits de 30 à 55 barils à l'heure.

Numéro 604. Pompe à culbuteur de soupape pour gaz ou vide. Résiste en service dur.

Numéro 1844. Groupe autopompe avec moteur combinaison gaz et essence. Débits de 50 barils à l'heure à une pression de 650 lbs., à 128 barils à 350 lbs. de pression.

Numéro 1509. Pompe entièrement sur roulements Timken. Débits allant de 63 barils à l'heure à une pression de travail de 800 lbs., à 250 barils à 300 lbs. de pression.

Numéro 2019. Groupe de pompage portatif. Débits allant de 63 barils à l'heure à 800 lbs. de pression de travail, à 250 barils à 300 lbs. de pression.

Numéro 1740. Autopompe avec commande à câble trapézoïdal sur moteur à gaz naturel et à essence. Débits allant de 54 barils à l'heure à une pression de travail de 1400 lbs. à 250 barils à 600 lbs. de pression.

Numéro 1741. Autopompe actionnée par moteur Diesel. Destinée au service des longues conduites à pétrole ou à eau. Débits allant de 250 lbs. à l'heure à une pression de travail de 600 lbs., à 502 barils à 300 lbs. de pression de travail.

Numéro 1742. Pompe à revêtement interchangeable. Type à cuvette latérale, actionnée par moteur électrique. Débits allant de 54 barils à l'heure à 1400 lbs. de pression, à 250 barils à 600 lbs. de pression.

Numéro 1931. Pompe pour systèmes hydrauliques, conduites de centralisation ou stations de renfort. Convient admirablement au service d'aspiration. Débits allant de 377 barils à l'heure à l'heure à 225 lbs. de pression, à 1045 barils à l'heure à 175 lbs. de pression.

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Насосы, построенные исключительно для нефтяной индустрии.

Фирма GASO втечение 20-ти лет специализируется по изготовлению насосов исключительно для нефтяной индустрии, вследствие чего насосы этой фирмы сконструированы так, чтобы в точности отвечать всем требованиям этой индустрии. Все насосы GASO характерны по крепости своей конструкции, малому количеству отдельных частей и большой выносливости. Фирма изготовляет все типы насосов, потребные для нефтяных промыслов, трубопроводов и перегонных заводов. Особое внимание уделено насосам для трубопроводов. Фирма GASO также изготовляет всевозможную и чрезвычайно прочную арматуру для трубопроводов.

Номер 201. Штанговый насос. Он присоединяется либо к полевым насосным штангам, либо к соединительным частям этих штанг и устанавливается между двигателем и скважиной или соединяется непосредственно с двигателем при помощи шатуна. Производительность от 31 до 41 баррелей в час.

Номер 301. Поршневой приводный насос (типа Jarker). Широко применяется там, где можно утилизировать работу механизмов, движущихся вперед и назад, или работу кривошипа. Производительность от 32 до 157 баррелей в час при давлении от 750 до 300 англо-фунтов.

Номер 601. Насос, работающий от балансира, применяется для откачки нефти или воды. Сконструирован для рабочего давления от 400 до 600 англо-фунтов. Производительность от 30 до 55 баррелей в час.

Номер 604. Насос, работающий от балансира; применяется для откачки газа или для вакуумных установок. Пригоден для тяжелых условий работы.

Номер 1844. Приводная насосная установка с комбинированным двигателем для работы газом или газолином. Производительность от 50 баррелей в час при давлении в 650 англо-фунтов, до 128 баррелей в час при давлении в 350 англо-фунтов.

Номер 1509. Насос, работающий целиком в подшипниках Timken. Производительность от 63 баррелей в час при рабочем давлении в 800 англо-фунтов, до 250 баррелей в час при рабочем давлении в 300 англо-фунтов.

Номер 2019. Переносная насосная станция. Производительность от 63 баррелей в час при рабочем давлении в 800 англо-фунтов, до 250 баррелей в час при рабочем давлении в 300 англо-фунтов.

Номер 1740. Приводный насос с приводными ремнями формы "V", работающий от комбинированного газового и газолинового мотора. Производительность от 54 баррелей в час при рабочем давлении в 1400 англо-фунтов, до 250 баррелей в час при рабочем давлении в 600 англо-фунтов.

Номер 1741. Приводный насос, работающий от Дизель-мотора. Применяется для длинных нефтепроводов или водопроводов. Производительность от 250 баррелей в час при рабочем давлении в 600 англо-фунтов, до 502 баррелей в час при рабочем давлении в 300 англо-фунтов.

Номер 1742. Насос со стальными цилиндровыми втулками. Работает от электро-мотора. Производительность от 54 баррелей в час при давлении в 1400 англо-фунтов, до 250 баррелей в час при давлении в 600 англо-фунтов.

Номер 1931. Насос для водопроводных систем, отборных линий или для водонапорных станций. Превосходно приспособлен для всасывания жидкости. Производительность от 377 баррелей в час при давлении в 225 англо-фунтов, до 1045 баррелей в час при давлении в 175 англо-фунтов.

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Por 20 años, la GASO se ha dedicado con especialidad a la construcción de bombas para uso exclusivo en la industria del petróleo, proyectándolas para responder con toda exactitud a los requisitos de los petroleros. Todas las bombas Gaso se caracterizan por sólida construcción, pocas piezas y gran duración. Se ofrece una serie completa de bombas para yacimientos petrolíferos, sistemas oleoconductores y refinerías, con particular atención a las empleadas en oleoconductores. La Gaso ofrece también un surtido completo de conexiones y accesorios para sistemas oleoconductores, de fina calidad.

Número 201. Bomba de vástago. Se usa en conexión con la linea de vástago o linea de enganche entre el motor y el pozo, o conectada directamente al motor mediante biela de conexión. Capacidad de 31 a 41 barriles por hora.

Número 301. Bomba de émbolo de fuerza (tipo Jerker). De extensa aplicación en lugares donde puede utilizarse un equipo intermitente de su clase. Capacidades de 32 a 157 barriles por hora, a presión de 750 a 300 libras.

Número 601. Bomba de viga movible, para petróleo y agua. Proyectada para presiones de trabajo de 400 y 600 libras. Capacidades de 30 a 55 barriles por hora.

Número 604. Bomba de viga movible, para gas y vacio. Resiste el uso más severo.

Número 1844. Unidad o grupo de bomba de fuerza con combinación de motor de gas y gasolina. Capacidades de 50 barriles por hora a 650 libras de presión a 128 barriles a 350 libras de presión.

Número 1509. Bomba montada completamente en cojinetes Timken. Capacidades de 63 barriles por hora a 800 libras de presión de trabajo a 250 barriles a 300 libras de presión.

Número 2019. Planta de bomba portátil. Capacidades de 63 barriles por hora a 800 libras de presión de trabajo a 250 barriles a 300 libras de presión.

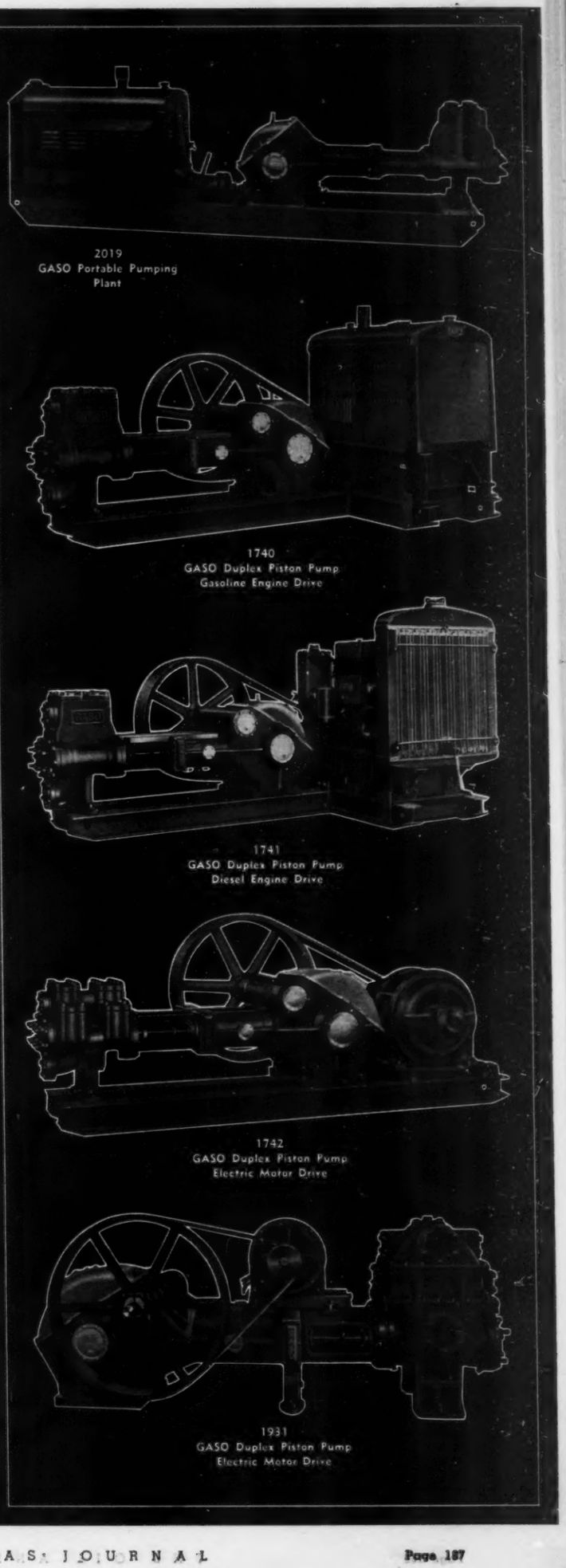
Número 1740. Bomba de fuerza con transmisión por cable en V de motor de gas natural o motor de gasolina. Capacidades de 54 barriles por hora a 1400 libras de presión de trabajo a 250 barriles a 600 libras de presión.

Número 1741. Bomba de fuerza con propulsión por motor diésel. Para grandes tuberías de petróleo o de agua. Capacidades de 250 barriles por hora a 600 libras de presión de trabajo a 502 barriles a 300 libras de presión.

Número 1742. Bomba de manguito de cilindro intercambiable, tipo de receptácula lateral, accionada por motor eléctrico. Capacidades de 54 barriles por hora a 1400 libras de presión de trabajo a 250 barriles a 600 libras de presión.

Número 1931. Bomba para sistemas de agua, tuberías de recolección y estaciones de amplificación. Admirablemente adecuadas a servicio de aspiración. Capacidades de 377 barriles por hora a 225 libras de presión, a 1045 barriles por hora a 175 libras de presión.

Pídanos nuestro catálogo general.



2019
GASO Portable Pumping Plant

1740
GASO Duplex Piston Pump
Gasoline Engine Drive

1741
GASO Duplex Piston Pump
Diesel Engine Drive

1742
GASO Duplex Piston Pump
Electric Motor Drive

1931
GASO Duplex Piston Pump
Electric Motor Drive

COMPANY -:- Tulsa, Okla.
Broadway, New York

PUMPS

GLOBE DRILLING and CORING EQUIPMENT

Please refer to Advertisers Index in back of this publication to locate our two-page advertisement where illustrations are numbered to correspond with the following numbers:

Fig. 172—Globe Type KR Roller Bearing Rock Coring Equipment takes accurate core from the hardest formations. The combination core catcher contains both tapered slips and fingers, or dogs, for breaking and holding cores. The cutters are sharp and wear well, and are then easy to change on the derrick floor. The Type KS Head for soft formations also is run on the same barrel.

Fig. 160—Globe Basket Bit is used for fishing junk out of the hole. It cuts a large diameter core which enters the barrel carrying on its top all small pieces of iron which are on the bottom.

Fig. 10—Globe-WKW Drilling Bits Type M-5, cut fast, straight, full-gauge hole. Circulation is discharged ahead of the two leading cutting teeth which helps to drill faster in soft formations. The method of locking head on shank is stronger than a pin and box joint, yet requires no tongs or bit breaker. Use this bit to drill hole 5⅝" to 9⅝"; use the Globe B-3 Bit for larger sizes.

Fig. 53—A Globe Three-Point Reamer will ream smooth, round hole and prevent the casing from sticking. It also centers drill collar and bit to insure straight hole.

Fig. 63—Globe-Smith Rotary Underreamer, enlarges the hole to set pipe easily; to secure complete water shut-off; and to set liners without turning down the couplings.

Fig. 14—Globe-Smith Types B and C Bits will drill many formations including tough and sticky shales. Slots deliver circulation ahead of cutting teeth. The notches in the blades are spaced irregularly to cut all the bottom of the hole, and yet require minimum weight for sufficient penetration to insure fast drilling.

Fig. 163—Globe Re-Drill Bit reams out hole previously made with smaller bit or core barrel. It is also very successful for tandem drilling by digging a small hole below and at the same time enlarging it with upper cutter. Both the cutter and the reamer are safely locked on the one-piece shank by the Globe method.

Fig. 164—Globe M-5 Drilling Reamers are run where desired above the bit and are very successful as they are set with diamond substitute on all cutting edges. They are ideal for foreign use as they wear slowly and are easily rebuilt.

Fig. 1—Globe-WKW B-3 Bits have been used around the world since 1927. They drill fast straight hole, are simple in design and light in weight. We have sold thousands for foreign service and you can use them safely and profitably.

Details and prices are listed in Composite Catalog. We invite you to write us in any language if you have difficult problems in drilling or taking cores. Please give us all information as to the formations, depth and size of hole, and your drilling programs so that we may recommend the equipment to solve your problems or to do your work better and at less cost.

На последней странице этого журнала имеется оглавление об'явлений. Просим Вас найти по этому оглавлению наше об'явление, занимающее две полные страницы. В этом об'явлении имеются иллюстрации наших инструментов, занумерованные в соответствии со следующими номерами:

Фиг. 172 — Грунтоноска с роликовыми подшипниками Globe типа KR для скалистых пород, пригодная для получения аккуратных колонок самых твердых формаций. Комбинированное приспособление для захвата колонки грунта состоит из скошенных клиньев и пальцев, или собачек, разбивающих и захватывающих грунт. Острые резцы хорошо сопротивляются износу и, в случае такового, легко сменяются на полу буровой вышки. Головки типа KS для мягких грунтов применяются с тем-же цилиндром грунтоноски.

Фиг. 160 — Долото — корзина Globe применяется для вылавливания из скважины разных обломков. Оно прорезает колонку большого диаметра, которая входит в цилиндр грунтоноска, причем на верху этой колонки помещаются все небольшие обломки стали, какие были на дне скважины.

Фиг. 10 — Бурильное долото Globe-WKW. Им достигается быстрое прямолинейное бурение, с получением скважины полного диаметра. Выход циркуляционной струи происходит впереди двух главных режущих зубьев, что облегчает быстрое бурение в мягких формациях. Метод соединения головки долота с переводником более прочный, чем метод ввертывания шейки, имеющей наружную резьбу в муфту с внутренней резьбой, причем не приходится применять ключей, или отвертывать резьбу ударами. Применяйте это долото для бурения скважин диаметром от 5⅝" до 9⅝". Для скважин более крупных диаметров пользуйтесь долотом Globe B-3.

Фиг. 53 — Трехсторонний Ример Globe проходит гладкую и круглую скважину, предупреждая заедание обсадных труб. Он также центрирует переводники и бурильное долото, чем обеспечивается прямолинейность бурения.

Фиг. 63 — Расширитель Globe-Smith для вращательного бурения увеличивает диаметр скважины и облегчает спуск обсадных труб; им также достигается полное закрытие воды; кроме того, получается возможность устанавливать вкладыши без отвертки муфты.

Фиг. 14 — Бурильные долотья Globe-Smith типа B и C пригодны для бурения разнообразных пород, включая твердые и вязкие сланцевые глины. Циркуляционная струя выходит впереди режущих зубьев долота. Зарубки на режущих кромках находятся на разных расстояниях, с тем, чтобы срезывать грунт по всей площади дна скважины. При этом требуется минимальный вес для удовлетворительного проникновения в грунт, необходимого для скорого бурения.

Фиг. 163 — Долото Globe для повторного бурения (Re-Drill). Оно работает как ример и им проходится скважина, уже пробуренная долотом меньшего диаметра или грунтоноской. Оно также очень успешно применяется для тандемного бурения, при котором скважина проходится римером меньшего диаметра, расположенным снизу и в то-же время расширяется верхним резцом большего диаметра. Резец и ример надежно укреплены по методу Globe в корпусе цельного переводника.

Фиг. 164 — Бурильные Римеры Globe M-5 спускаются в скважину сверху долота и работают чрезвычайно удачно так как все их режущие кромки снабжены вставками из твердого сплава, заменяющего алмазы. Они идеальны для иностранных промыслов, так как изнашиваются чрезвычайно медленно и легко исправляются.

Фиг. 1 — Долотья Globe-WKW B-3 применяются по всему земному шару начиная с 1927 года. Ими достигается быстрое бурение прямых скважин; конструкция долотьев простая и вес легкий. Мы продали тысяча этих долотьев на заграничные промысла и Вы можете пользоваться ими безопасно и выгодно.

Детали и цены имеются в сборном каталоге. Просим Вас писать нас на любом языке о всех затруднениях, которые у Вас встречаются во время бурения или при работах грунтоносками. При этом, пожалуйста, сообщайте нам все данные, как в смысле формаций, глубины и диаметра скважины, так и о Вашей программе ведения бурильных работ, с тем, чтобы мы могли правильно рекомендовать оборудование для разрешения Ваших проблем, или для улучшения и удешевления производимых Вами работ.

Sírvase referirse al Indice de Anunciantes, en la última página de esta revista, para que sepa donde está nuestro anuncio de dos páginas, cuyas ilustraciones estn numeradas de modo que coinciden con los números siguientes:

Fig. 172—Equipo de perforación de muestras Globe tipo KR, montado en cojinete de rodillos, obtiene muestras exactas de los yacimientos o formaciones más duras. El agarrador de muestras de combinación contiene sujetadores conicos y uñas, para romper y sujetar las muestras. Los cortadores son afilados y duran mucho, pudiendo cambiarse con facilidad sobre la plataforma del malacate. La cabeza de tipo KS para formaciones blandas funciona también en el mismo cilindro.

Fig. 160—La barrena Globe Basket se emplea para pescar hierro viejo y sacarlo del agujero. Corta una muestra de diámetro grande, la cual entra al cilindro, llevando en su parte superior todas las pequeñas piezas de hierro caídas al fondo.

Fig. 10—Barrenas de perforación Globe-WKW, tipo M-5, para horadar con rapidez en linea recta y hacer un agujero de diámetro completo. La circulación se descarga adelante de los dos dientes delanteros, lo que permite una perforación más rápida en formaciones blandas. El método de cerrar la cabeza en el vástago es mucho más firme que la unión de pasador y dado, sin exigir la ayuda de tenazas u otras herramientas. Estas barrenas se emplean para perforaciones de 5⅝ a 9⅝". Las barrenas Globe B-3 sirven para perforaciones más grandes.

Fig. 53—Escariador Globe de Tres Puntos. Hace una escariación suave y circular e impide el atascamiento del revestimiento. También da centro al collar de la sonda y barrena, para asegurar un agujero recto.

Fig. 63—Escariador rotatorio Globe-Smith. Agranda el agujero para facilitar la introducción del tubo. Sirve también para cerrar el agua y para colocar forros sin necesidad de aflojar los acoplamientos.

Fig. 14—Las barrenas Globe-Smith de tipos B y C perforan muchas formaciones, incluyendo las duras y pegajosas de esquisto. Las ranuras descargan la circulación adelante de los dientes cortantes. Las muescas en las láminas están irregularmente separadas para cortar todo el fondo del agujero, necesitándose un peso mínimo para suficiente penetración y asegurar una rápida perforación.

Fig. 163—Barrena de repaso Globe. Agranda el agujero previamente perforado con barrena o perforador de muestra más pequeño. Resulta también muy útil para la perforación combinada, abriendo un agujero pequeño por debajo y agrandándolo, al mismo tiempo por arriba con un cortador. Tanto el cortador como la barrena están bien unidos en un solo vástago de una sola pieza, por el método Globe.

Fig. 164—Escariadores de perforación Globe M-5. Se usan en cualquier punto arriba de la barrena y resultan muy útiles, a causa de que en todos sus filos cortantes llevan un substituto de diamante. Son ideales para uso en el extranjero, a causa de que se desgastan muy lentamente, pudiendo reconstruirse con facilidad.

Fig. 1—Las barrenas Globe-WKW de tipo B-3 se han usado en todas partes del mundo desde 1927. Perforan agujeros rectos con suma rapidez. Son de sencilla construcción y de peso liviano. Hemos vendido millares para uso en el extranjero y Ud. puede también utilizarlas con seguridad y beneficios.

En el catálogo combinado se dan información detallada y precios. Le invitamos a escribirnos en cualquier idioma si Ud. tiene problemas de perforación o de muestras. Al escribirnos, sírvase darnos todos los datos del caso, incluyendo formaciones, profundidad y diámetro de los agujeros y su programa de trabajo, para que con esta información podamos nosotros recomendarle el equipo más adecuado a la solución de sus problemas o a la ejecución del trabajo con mayor eficacia y economía.

Veuillez bien vous reporter à l'Index des Annonceurs au dos de la présente publication afin de trouver l'endroit de notre annonce de deux pages, où les gravures sont numérotées de façon à correspondre aux numéros ci-dessous:

Fig. 172—Equipement de carottage Globe Type KR à coussinets à rouleaux pour formations rocheuses, qui prélève une carotte dans les gisements les plus durs. Le dispositif carottier à combinaison comprend d'une part des patins ovalisés, d'autre part des doigts ou griffes pour entamer et tenir les carottes. Les fraises fournies sont très tranchantes et font un excellent usage, puis sont faciles à changer sur la base de la chèvre. Le mécanisme du type KS pour formations molles s'adapte aussi au même baril de chèvre.

Fig. 160—Le trépan Globe à panier s'emploie pour repêcher le rebut au fond du trou de forage. Il taille une carotte de fort diamètre qui entre dans le baril portant à son sommet tous les petits débris ramassés au fond du trou.

Fig. 10—Les trépans de forage Globe-WKW du type M-5 taillent rapidement des trous rectilignes à la cote. Le jaillissement se produit à l'avant des deux principales dentes coupantes, ce qui assure un forage plus rapide dans les formations molles. La méthode qui consiste à verrouiller la tête du mécanisme sur la tige est plus forte qu'un joint mâle et femelle, mais ne demande pas dependant de tenailles, ni de brise-trépan. Employez ce trépan pour forer des trous allant de 5⅝ à 9⅝ pouces; mais utilisez le trépan Globe B-3 pour des diamètres plus fort.

Fig. 53—Un aléseur Globe à trois points d'attaque permettra d'aléser un trou bien rond et régulier, et empêchera le revêtement de puits de se coincer. Il permet aussi de centrer le collier de forage et le trépan, ce qui assure un forage rectiligne.

Fig. 63—Le sous-aléseur rotatif Globe-Smith sert à élargir le trou de forage afin de pouvoir poser la tuyauterie plus facilement, d'assurer la fermeture complète de l'eau, et enfin afin de pouvoir poser les joints sans devoir serrer les raccords.

Fig. 14—Les trépans Globe-Smith des types B et C permettent de forer de multiples formations, y compris les argiles schisteuses, dures et collantes. Des rainures permettent au jaillissement de se faire à l'avant des dents tranchantes. Les encoches aménagées dans les lames sont irrégulièrement espacées afin de tailler tout le fond du trou de forage, et pourtant ne demandent qu'un poids minimum pour assurer la pénétration suffisante dont dépend un forage rapide et efficace.

Fig. 163—Le trépan de reforage Globe alèse un trou précédemment foré avec un trépan ou un baril carottier plus petit. C'est encore un dispositif très efficace pour effectuer le forage dit tandem qui consiste à creuser un petit trou de forage en dessous, et à élargir en même temps ce trou au moyen de la fraise supérieure. La fraise et l'alésoir sont tous deux solidement verrouillés sur la tige d'une seule pièce selon la méthode Globe.

Fig. 164—Les aléseurs de forage Globe M-5 s'emploient chaque fois qu'on le désire au-dessus du trépan, et sont d'une grande efficacité car ils sont équipés de succédané du diamant sur toutes les arêtes tranchantes. Ils sont vraiment l'idéal sur les champs d'exploitation à l'étranger, car ils font un très long usage et se reconstruisent facilement.

Fig. 1—Les trépans Globe-WKW B-3 sont en usage dans le monde entier depuis 1927. Ils forent un trou rectiligne, très rapidement, sont de construction simple et de poids léger. Nous en avons vendu des milliers pour service à l'étranger, et vous pouvez les utiliser avantageusement et en toute sécurité.

Tous détails utiles et prix sont indiqués dans le catalogue général. Nous vous invitons à nous écrire dans n'importe quelle langue, si vous vous heurtez à des problèmes difficiles dans le forage ou le prélèvement de carottes. Veuillez bien ne pas manquer de nous donner toutes précisions utiles sur les formations, la profondeur et le diamètre du trou, et vos programmes de forage, afin que nous puissions vous recommander en connaissance de cause l'équipement répondant à vos conditions d'emploi ou susceptible d'effectuer vos travaux mieux et à moins de frais.

GLOBE OIL TOOLS COMPANY
DRILLING, REAMING AND CORING EQUIPMENT
(LOS ANGELES COUNTY) LOS NIETOS, CALIFORNIA, U. S. A.

NEW DEAL PIPE CLEANING MACHINES

The New Deal Pipe Cleaning Machines, made by The New Deal Specialty Co., Okmulgee, Oklahoma, U. S. A., are designed for the complete removal of dirt, rust, scale and corrosion from the surface of pipe and casing. The machines are the result of millions of feet of pipe cleaned. The experience of its manufacturers is combined with the cooperation of practical field engineering staffs and mechanics of the operating and maintenance departments of oil and gas companies, pipe lines, supply houses and pipe dealers throughout the American fields.

The circular wire brush attachment operates with enclosed drive. There are three sizes: Standard, capacity ¾" ID to 8⅝" OD casing; Heavy Duty 2" to 10¾" OD; Master, 2" to 14" OD. A special adapter is available to handle pipe down to ¾" OD.

A full view illustration with list of principal features is shown in another part of this magazine.

Illustrated folder sent on request.

Машины New Deal для очистки труб, изготовляются фирмой New Deal Specialty Co., Okmulgee, Oklahoma ,U.S.A. Они сконструированы для полной очистки поверхности труб, включая обсадные трубы, от грязи, ржавчины, окалины и от проч. нечистот. Конструкция машин является результатом очистки миллионов фут труб. Опыт фабрикантов этих машин скомбинирован с кооперацией практически опытного инженерного состава и механиков оперативных и эксплоатационных отделов нефтяных и газовых компаний, трубопроводов, поставщиков и также продавцов труб всех американских нефтяных районов.

Приспособление с круглыми проволочными щетками работает от закрытой передачи. Машины строятся трех размеров: стандартный, пригодный для труб наружным диаметром от ¾" до 8⅝"; тяжелый для труб наружным диаметром от 2" до 10¾" и Master для труб наружным диаметром от 2" до 14". Специальное приспособление может быть поставлено с машиной для очистки тонких труб, вплоть до ¾" наружным диаметром.

Иллюстрация машин с указанием главных достоинств имеется в другой части этого журнала.

Иллюстрированный бюллетень высылается по требованию.

Las máquinas New Deal para limpiar tubos, fabricadas por The New Deal Specialty Co., Okmulgee, Oklahoma, E. U. A., sirven para quitar de la superficie exterior de los tubos y revestimientos, la tierra, escoria y moho. Estas máquinas son el resultado de millones de metros de tubería limpiada de este modo. La experiencia de sus fabricantes está combinada con la cooperación del personal técnico de campo y los mecánicos de los departamentos de operación y conservación de grandes empresas de petróleo y gas, sistemas de oleoconductos, firmas abastecedoras y comerciantes de tubería, en todos los centros petrolíferos de los Estados Unidos.

El aditamiento de cepillo circular de alambre tiene transmisión tapada. Hay tres tamaños: el normal con capacidad de ¾" de diámetro interior 8¾" de diámetro exterior de revestimiento; el de servicio pesado, de 2" a 10¾" de diámetro exterior, y el Master, de 2" a 14" de diámetro exterior. Hay un adaptador especial para limpiar tubos hasta de ¾" de diámetro exterior.

Una vista completa, con lista de los principales rasgos, aparece en otra página de esta revista.

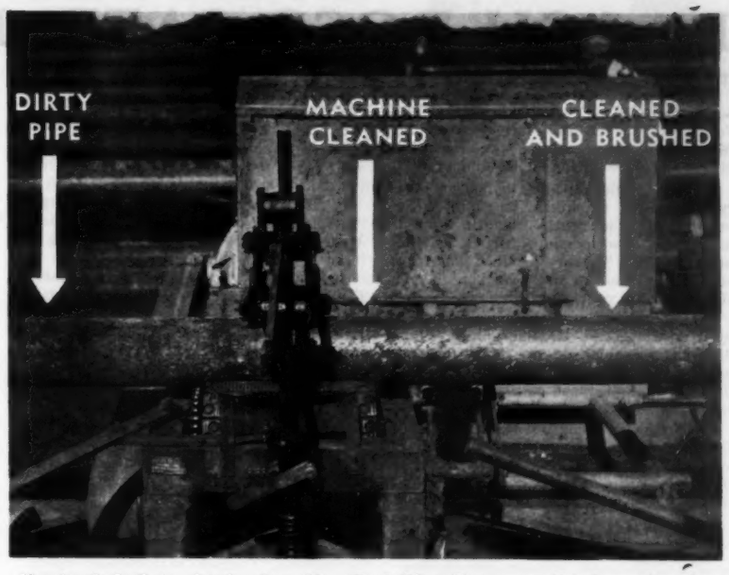
Catálogo ilustrado a solicitud.

Les machines New Deal à nettoyer les tuyaux, fabriquées par la New Deal Specialty Co., Okmulgee, Oklahoma, U.S.A., ont été conçues pour assurer l'enlèvement intégral des impuretés, de la rouille, des écailles et de la corrosion, de la surface des tuyaux et des revêtements. Ces machines sont le fruit d'une expérience comptant des millions de pieds de tuyau nettoyés à fond. L'expérience de son fabricant a aussi bénéficié de la coopération d'ingénieurs et mécaniciens pétroliers des chantiers, faisant partie des services d'exploitation et d'entretien des compagnies de pétrole et de gaz, ainsi que des revendeurs de canalisations et maisons de fournitures pétrolières sur tous les champs de pétrole des Etats-Unis.

La brosse métallique circulaire accessoire fonctionne sur commande close. Trois grandeurs sont prévues: Standard, capacité: revêtement allant de ¾ de pouce DI à 8¾ DE; Service Dur: 2 à 10¾ pouces DE; Général, 2 à 14 pouces DE. Un adapteur spécial peut s'obtenir pour tuyaux allant jusqu'à ¾ de pouce DE.

Une illustration complète donnant la liste des principales caractéristiques est reproduite dans une autre partie de la présente revue.

Dépliant illustré fourni sur demande.

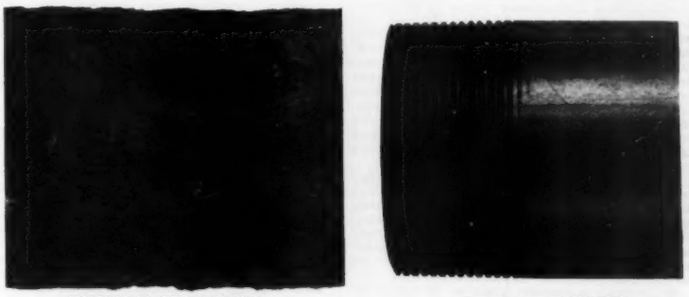


Unretouched photo showing how New Deal Pipe Cleaners really clean pipe clean.

Нересушенная фотография, указывающая как машина New Deal в действительности очищает трубу.

Fotografía sin retocar de una limpiadora de tubo New Deal verdaderamente limpiando muy bien un tubo

Photo non retouchée montrant comment les nettóyeuses de tuyaux New Deal nettoient a fond la tuyauterie.



BEFORE CLEANING. **AFTER CLEANING.**

Be Safe. Clean pipe can be properly graded.

Будьте осторожны. Очищенные трубы всегда оцениваются правильно.

Protéjase. El tubo limpio puede clasificarse en debida forma.

Ne risquez rien. Un tuyau propre peut etre correctement classé.

Special Carburized steel cleaning blades.

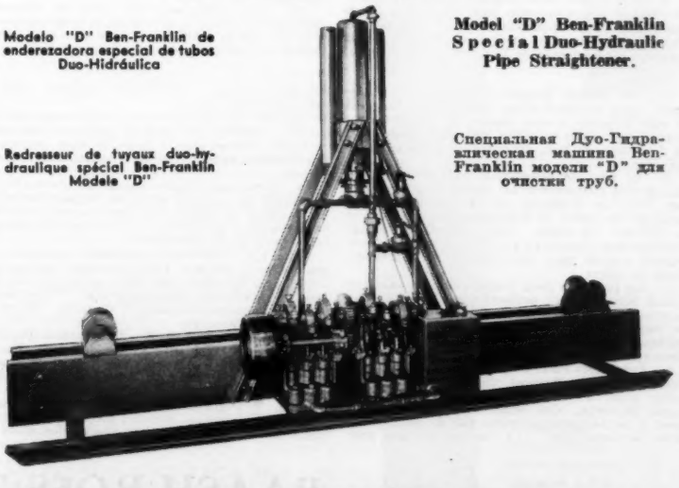
Очищающие лезвия из специальной углеродистой стали.

Lámina o cuchilla de limpiadora de especial acero carburizado.

Lames de nettoyage spéciales en acier carburé.

Modelo "D" Ben-Franklin de enderezadora especial de tubos Duo-Hidráulica

Redresseur de tuyaux duo-hydraulique spécial Ben-Franklin Modele "D"



Model "D" Ben-Franklin Special Duo-Hydraulic Pipe Straightener.

Специальная Дуо-Гидравлическая машина Ben-Franklin модели "D" для очистки труб.

NEW DEAL "DUO-HYDRAULIC PIPE STRAIGHTENERS"

The New Deal Specialty Company has also perfected and placed on the market, their new Duo-Hydraulic Pipe Straighteners and Pipe Bending Machines.

Combining the exhaustive study, research and tests of our engineering staff with the practical field experience of oil operators, pipe line men and pipe dealers, the Duo-Hydraulic represents the most complete, compact and modern pipe straightener yet perfected, insuring satisfactory and economical operation in all fields and under all conditions.

All models of the Duo-Hydraulic straighteners are described in another part of this magazine. Illustrated folder will be sent on request.

Фирма New Deal Specialty Co. также усовершенствовала и выпустила на рынок свою новую Дуо-Гидравлическую Машину для Выпрямления Труб и Для Изгиба Труб.

Наши исчерпывающие изучения, обследования и испытания, произведенные нашим инженерным составом, были скомбинированы с практическим опытом операторов на нефтяных промыслах, и персонала обслуживающего трубопроводы и продавцев труб. В результате этого, наш Дуо-Гидравлический Станок представляет собою наиболее законченный, наиболее компактный и наиболее современный станок из всех усовершенствованных до сего времени, что обеспечивает удовлетворительность и экономичность его работы на любых промыслах и при любых условиях.

Все модели Дуо-Гидравлических станков для выпрямления труб описаны в другой части этого журнала. Иллюстрированный бюллетень высылается по требованию.

La New Deal Specialty Company ha perfeccionado también e introducido al mercado sus nuevas máquinas Duo-Hidráulicas para enderezar y doblar tubos.

Combinando los profundos estudios, investigaciones y ensayos de nuestro personal técnico con la experiencia práctica de campo de ingenieros y mecánicos, de compañías de petróleo y de transporte por oleoconductos y de comerciantes de tubería, la enderezadora Fuo-Hidráulica New Deal representa la máquina de su clase más completa, más compacta más moderna del mercado, asegurando un servicio satisfactorio y económico en toda explotación y bajo toda condición de trabajo.

Todos los modelos de estas máquinas enderezadoras se describen en otra página de esta revista. A solicitud enviaremos folleto ilustrado.

La New Deal Specialty Company a aussi perfectionné et mis sur le marché ses nouveaux redresseurs de tuyau duo-hydrauliques et ses machines à couder les tuyaux.

Bénéficiant des études, recherches et épreuves approfondies de nos ingénieurs, ainsi que da l'expérience pratique en chantier des exploiteurs pétroliers, des spécialistes de canalisations et des revendeurs de tuyauterie, le Duo-Hydraulique constitue le redresseur de tuyaux le plus complet, le plus compact et le plus moderne qui ait jamais été perfectionné, car il assur une exploitation économique et satisfaisante de tous les champs et dans toutes les conditions.

Tous les modèles de redresseurs Duo-Hydraulic sont décrits dans une autre partie de la présente revue. Nous fournirons un dépliant illustré sur simple demande.

THE NEW DEAL SPECIALTY CO., INC.

OKMULGEE, OKLA., U.S.A.

P. O. BOX 1504 **PHONE 2078-L.D. 14.**

BAASH-ROSS SAFE, MODERN OIL TOOLS

1. Trubore Forged Upset Kellys are scientifically designed, forged to true size from alloy steel and fully normalized. Made in all standard and special lengths, sizes and circulation hole diameters.

2. The circulation hole, drilled on highly specialized machines, is centered accurately for its entire length, and is without offsets to cause turbulence and sand cutting. Trubore Drill Collars are stocked in standard sizes; any special design made to your specifications.

3. The strength of the blow delivered by this Improved Kammerdiner Rotary Jar, made exclusively by Baash-Ross, is governed by the torque created in the fishing string. Tripped by a straight pull; re-set by lowering the drill pipe.

4. The extra long flat-backed slips of the Rotary Releasing Spear are solidly backed up by the three-step surface of the body. Slips are positively set and easily released by rotation of the fishing string. Withstands long, continuous jarring without damage.

6A-6B. The Long Knife Perforator is positive in action; used with both rotary and cable tools; long perforating knife penetrates two strings of casing.

8. This Internal Casing Cutter is the most popular of all inside cutting tools. Made in all sizes to cut casing, tubing or internal flush joint drill pipe.

10. The full length rollers of the Roller Kelly Bushing insure even, controlled feed of kelly through rotary without binding. Reduces wear on kelly and table bearings. Minimizes hazard of twist-off.

12. Easy to use, positive in action, this Baash-Ross Blowout Preventer should be on every drilling well.

14. Self-Aligning Rotary Slips eliminate bottlenecking or crushing of the drill pipe. Positively align themselves with pipe, taking a full-length effective grip, regardless of condition of master bushing.

17. The Autolock Safety Joint permits any rotation in either direction required for the operation of fishing tools. Safely releases if tools become stuck in the hole.

19. The External Drill Pipe Cutter is run on washover pipe. The cut is made by rotating the fishing string and the cut-off pipe is retained in the washover pipe while being withdrawn from the hole.

20. Type "A" Casing Head—screws on outer casing; supports inner casing by self-equalizing slips. Opening through body is equal to the diameter of the casing suspended. Compact, efficient, economical. Tested to 4,000 pounds.

21. The Type "B" Landing Head is used wherever solid support for outer string of casing is required. Inner string supported in slips. All joints packed off by tightening one set of bolts.

22. Type "A" Tubing Head screws directly on all Baash-Ross Casing and Landing Heads or on standard casing thread. Slips and packing assembly facilitate safe handling of tubing. Tubing can be removed through gate valve under pressure when this head is used without disturbing connections. Tested to 6,000 pounds.

23. The Type "B" Combination Landing Head is a compact assembly for supporting two strings of casing and tubing. Internal parts are interchangeable in Baash-Ross Casing and Tubing Heads.

25. Unit-Type Crown Block is easily installed in any derrick. Positive alignment and even distribution of load assured by one-piece cast steel frame. Made in 4-5-6-7-sheave designs with 36-inch to 60-inch sheaves to meet all drilling requirements.

26. Unit Type Tubing Block is rigid and strong enough to handle the longest strings of tubing.

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1. Кованые, высаженные бурильные штанги с насквозь просверленным циркуляционным каналом, отковываются до точных размеров из стального сплава и тщательно нормализируются. Они изготовляются всех стандартных и специальных длин, всех размеров и всех диаметров циркуляционных каналов.

2. Циркуляционные каналы, которые просверливаются на специальных высококачественных станках, проходят по всей длине бурильной штанги аккуратно по ее центральной оси. В этих каналах отсутствуют какие-либо выступы, которые могли-бы вызывать неспокойную подачу струи грязевого раствора или подвергаться срезывающему эффекту песков. Переводники для вращательного бурения стандартных размеров со сквозным просверленным каналом имеются на складе; переводники специальной конструкции изготовляются по Вашим спецификациям.

3. Сила удара усовершенствованного веса Kammerdiner для вращательного бурения, изготовляемого исключительно фирмой Baash-Ross, контролируется крутящими усилиями, создаваемыми колонной ловильных труб. Вес освобождается прямым под'емом труб и падает на место при спуске бурильных труб.

4. Экстра-длинные слипсы освобождающейся труболовки для вращательного бурения имеют плоскую форму задней поверхности. Они прочно опираются на трехступеньчатую поверхность корпуса труболовки. Слипсы захватывают трубу прочно и надежно и освобождаются вращением колонны ловильных труб. Они без порчи выдерживают продолжительное и непрерывное расхаживание труб.

6A-6B. Перфоратор с длинным ножом совершенно точно и безошибочно выполняет свою работу; он применяется при вращательном и при канатном бурении; длинный нож перфоратора проходит через две колонны обсадных труб.

8. Эта внутренняя труборезка для обсадных труб является самой популярной из инструментов этого типа. Она изготовляется всех размеров для резки обсадных труб, насосных труб или бурильных труб, свинчивающихся внутри за подпицо.

10. Роликовая втулка для ударной штанги имеет ролики полной длины, что обеспечивает равномерную и регулируемую подачу бурильной штанги через ротор. Ею уменьшается напос бурильной штанги и подшипников ротора, а также уменьшается опасность срывов резьбы.

12. Благодаря легкости и надежности применения, предохранитель против выбросов фирмы Baash-Ross должен устанавливаться в каждой бурящейся скважине.

14. Само-центрирующиеся слипсы для ротора исключают возможность сплющивания и смятия бурильных труб. Они получают полный контакт с поверхностью трубы и захватывают ее полной своей длиной, независимо от того, в каком состоянии находится главный вкладыш.

17. Безопасная соединительная муфта с автоматическим затвором допускает вращение ловильных инструментов в любом требуемом направлении. Она безопасно освобождает инструменты, если они зависли в грунте скважины.

19. Наружная трубореска для бурильных труб спускается на промывных трубах. Обреска производится вращением колонны ловильных труб и обрезанные трубы остаются внутри промывных труб при извлечении их на скважины.

20. Голова типа "А" для обсадных труб ввертывается на наружную обсадную трубу; она поддерживает внутреннюю колонну обсадных труб при помощи само-уравновешивающихся слипсов. Проходное отверстие в корпусе головки имеет тот-же диаметр, что и подвешенная колонна. Эти головки компактны, эффективны и экономны. Они испытываются на 4000 англо-фунтов.

21. Спускная головка типа "В" для спуска труб на забой применяется там, где нужна прочная поддержка для наружной колонны обсадных труб. Внутренняя колонна поддерживается слипсами. Все соединения закрепляются подверткой одного комплекта болтов.

22. Головка "А" для насосных труб привертывается непосредственно к головкам Baash-Ross для обсадных труб и к спускной головке, либо привертывается к стандартной резьбе обсадных труб. Слипсы и комплект набивок облегчает безопасный спуск насосных труб. При употреблении этой головки, насосные трубы могут быть извлечены через задвижку обсадных труб, если даже в скважине имеется давление. Это делается без нарушения каких-либо соединений.

23. Комбинированная спускная головка типа "В" представляет собою компактную сборную единицу, служащую для поддержки двух колонн обсадных и насосных труб. Внутренние части головок Baash-Ross для обсадных и насосных труб взаимозаменяемы.

25. Единственный в своем роде талевой блок легко устанавливается на любой вышке. Точное взаимное расположение частей и равномерное распределение нагрузок обеспечивается общей рамой из литой стали. Этот талевой блок изготовляется с 4-5-6-7 блоками диаметром от 36" до 60", в зависимости от разнообразных условий бурения.

26. Единственный в своем роде блок для насосных труб достаточно прочен и силен для под'ема самых длинных колонн насосных труб.

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1. Las Kelly Trubore, de construcción científica, se forjan de especial aleación de acero y se ofrecen en tamaños uniformemente exactos. Se hacen en toda longitud, tamaño y diámetro de agujero de circulación normal y especial.

2. El agujero de circulación, perforado en máquinas muy especializadas, se centra exactamente en su longitud completa y no tiene curvas que causen turbulencia o voce de arena. Los collares de perforadora Trubore se ofrecen en tamaños corrientes y pueden también hacerse en tipos especiales para satisfacer requisitos particulares.

3. La fuerza del golpe dado por este agitador rotatorio perfeccionado Kammerdiner, fabricado exclusivamente por la Baash-Ross, se gobierna por el esfuerzo de rotación desarrollado en la cuerda de la pescadora. Se dispara por un tiro recto y se cierra bajando el tubo de la perforadora.

4. Los patines bien largos y planos del arpón de disparo rotatorio están bien reforzados por la superficie de tres pasos del cuerpo. Los patines de aprietan bien y se sueltan fácilmente por la rotación de la cuerda de la pescadora. Soportan muy bien los continuos golpes sin sufrir daño alguno.

6A-6B. El perforador de cuchilla larga es de acción positiva. Se usa con perforadora rotatoria y con perforadora de cable. La larga cuchilla de perforación penetra dos hileras de revestimiento.

8. Este cortador de revestimiento interno es la herramienta más popular de todas las de su clase. Se hace en todo tamaño para cortar revestimientos, tuberías o tubo de perforadora con uniones planas interiores.

10. Los rodillos de longitud completa de buje del rodillo Kelly aseguran una alimentación uniforme y gobernada de la varilla Kelly por la rotatoria, sin atascamiento. Reduce el desgaste de la Kelly y de los cojinetes de la mesa. Disminuye el peligro de torsión.

12. Fácil de usar y positivo en acción, el eliminador de explosión Baash-Ross es equipo indispensable de toda perforación de pozo.

14. Los sujetadores rotatorios de alineación automatica evitan la deformación y aplastamiento del tubo de la perforadora. Se alinean positivamente con el tubo, dando un agarro de longitud completa, sin consideración del estado del buje principal.

17. La unión de seguridad Autolock permite la rotación en cualquier sentido, que se necesita para el funcionamiento de herramientas pescadoras. Se suelta con seguridad cuando las herramientas se clavan en el agujero.

19. El cortador de tubo de perforadora exterior funciona en el tubo superior. El corte se hace girando la cuerda de la pescadora y el tubo cortado se retiene en el superior mientras se está sacando del agujero.

20. Cabeza de revestimiento, de tipo "A". Se atornilla en la cabeza de afuera; soporta el revestimiento interior por medio de sujetadores de compensación automática. La abertura en el cuerpo es igual al diámetro del revestimiento suspendido. Compacta, eficaz y económica. Ensayada a 4.000 libras.

21. Cabeza de fondo, de tipo "B" se emplea cuando se requiere un soporte sólido para la hilera de revestimientos exteriores. La hilera interior se soporta por sujetadores. Todas las uniones se cierran aprentando un juego de pernos.

22. Cabeza de tubería de tipo "A". Se atornilla directamente en la cabeza superior y la de fondo o soporte de revestimiento Baash-Ross, o en rosca normal de revestimiento. El grupo de sujetadores y empaquetaduras facilitan el manejo seguro de la tubería. La tubería puede quitarse por la válvula de compuerta, bajo presión, cuando se emplea esta cabeza, sin perturbar las conexiones Ensayada a 6.000 libras.

23. Combinación de cabeza de fondo o soporte, de tipo "B". Es compacta y firme para soportar dos hileras de revestimientos y de tubería. Las piezas interiores son intercambiables con las de las cabezas Baash-Ross de revestimiento y tubería.

25. Bloque de corona, tipo Unit de fácil instalación en cualquier malacate. Alineación positiva y distribución uniforme de la carga aseguradas por el bastidor de acero fundido de una sola pieza. Se ofrece en modelos de 4, 5, 6 y 7 roldanas, con éstas de 36" a 60" para responder a todo requisito de perforación.

26. Bloque de tubería, tipo Unit. Es rígido y bastante firme para manejar las hileras más largas de tubos.

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1. Les Kellys Trubore, forgés par refoulement, sont de construction scientifique, forgés à la cote à partir d'acier spécial et complètement normalisés. Faits en toutes longueurs, grandeurs, et diamètres de trou de circulation, standard et spéciaux.

2. Le trou de circulation, foré sur des machines très spécialisées, est centré avec précision sur toute sa longueur, et ne présente aucun décalage de nature à provoquer la turbulence et le frottage du sable. Les colliers de forage Trubore sont stockés en grandeurs standard; tout modèle spécial peut être obtenu sur spécifications du client.

3. La force du coup donné par cet ébranleur rotatif Kammerdiner perfectionné, fait exclusivement par Baash-Ross, est contrôlée par le moment de rotation réalisé dans le câble de repêchage. Déclenché par une traction rectiligne; remis en place en abaissant le tuyau de forage.

4. Les patins extra-longs à dos plat du harpon rotatif de déclenchement viennent prendre un solide point d'appui contre la surface à trois degrés du corps. Ces patins sont posés positivement et se dégagent aisément par la rotation du câble de repêchage. Ce harpon résiste très longtemps aux trépidations répétées, sans le moindre dommage.

6A-6B. Le perforateur à long conteau a une action positive; il s'emploie tant avec les outils rotatifs qu'avec ceux à câble; le long couteau de perforation pénètre les deux colonnes de revêtement.

8. Ce coupoir de revêtement interne est le plus demandé de tous les outils de coupage intérieur. Est offert de toutes grandeurs pour couper les revêtements, le tubage ou le tuyau de forage interne à joint affleurant.

10. Les rouleaux de longueur complète du coussinet à rouleau Kelly assurent une avance régulière, contrôlée, du kelly au moyen du dispositif rotatif sans aucun grippage. Usure moindre des coussinets de kelly et de table. Moins de risques de faussage.

12. D'un emploi facile, d'une action positive, ce dispositif éliminateur d'éclatements Baash-Ross devrait être présent sur tout puits de forage.

14. Les patins rotatifs auto-aligneurs suppriment le coinçage ou l'écrasement du tuyau de forage. S'alignent positivement et automatiquement avec le tuyau, prenant une adhérence efficace sur toute la longueur, abstraction faite de l'état du coussinet principal.

17. Le joint de sûreté auto-verrouilleur permet toute rotation dans n'importe quel sens demandé pour l'emploi des outils de repêchage. Se débloque sans défaillance si les outils viennent à se coincer dans le trou.

19. Le coupe-tuyau de forage externe est employé sur tuyau de lavage extérieur. L'entaille est faite en faisant tourner le câble de repêchage, et le tuyau cisaillé est retenu dans le tuyau de lavage pendant son retrait du trou.

20. Tête de revêtement Type "A"—se visse sur le revêtement extérieur; soutient le revêtement intérieur par des patins auto-équilibreurs. L'ouverture aménagée sur toute la longueur du corps est égale au diamètre du revêtement suspendu. A la fois compact, efficace, économique. Essayé sous une pression de 4.000 livres.

21. Le dispositif Type "B" de descente des revêtements est utilisé chaque fois qu'on a besoin d'un soutien solide pour la colonne extérieure de revêtement de puits. La colonne intérieure est appuyée sur patins. Tous les joints sont tassés en serrant un jeu de boulons.

22. Tête de tubage Type "A", se vissant directement sur tout revêtement et dispositif de descente de revêtement Baash-Ross, ou sur filetage standard de revêtement. Les patins et le groupe de garniture facilitent la descente du tubage en toute sécurité. On peut extraire le tubage par la soupape vanne sous pression lorsqu'on fait emploi de cette tête, et cela sans aucun démontage de raccords. Essai de pression à 6.000 livres.

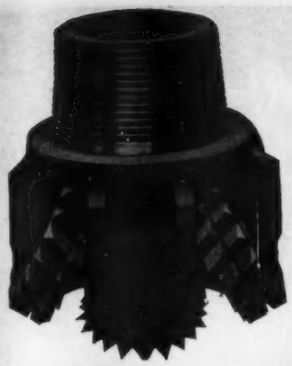
23. Le dispositif combinaison type "B" de descente des revêtements est un groupe compact destiné à supporter deux colonnes de revêtement et de tubage. Ses organes internes sont interchangeables dans les têtes de revêtement et de tubage Baash-Ross.

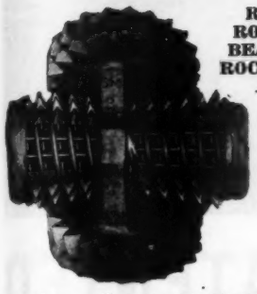
25. Le bloc-couronne du type groupe est d'installation facile sur toute grue du type chèvre. L'alignement positif et la répartition égale de la charge sont assurés par un châssis d'acier coulé d'une seule pièce. Il est fait en modèles à 4-5-6-7 galets avec des galets de 36 à 60 pouces, prévoyant tous les besoins du forage.

26. Le bloc de tubage du type groupe est assez rigide et assez résistant pour pouvoir venir à bout des plus longues colonnes de tubage.

BAASH-ROSS TOOL COMPANY

5512 South Boyle Avenue
LOS ANGELES, CALIFORNIA, U.S.A.





REED ROLLER BEARING ROCK BITS

Благодаря отбалансированности достигается прямолинейное бурение.

Эти долота требуют меньших нагрузок и бурят быстрее, так как конструкция поперечных роликов такова, что при подаче долота, они не работают по окружности, а все время отводятся в сторону, *скручивая* и *разрывая* грунты в процессе *проникновения.*

Правильно циркулирующий грязевой раствор быстро удаляет частицы срезываемых грунтов, давая возможность зубьям фрезов работать все время в новых грунтах и не дает долоту завязнуть в вязких формациях.

СОЕДИНИТЕЛЬНЫЕ ЗАМКИ REED С ЦИРКУЛЯЦИОННЫМ КАНАЛОМ ПОЛНОГО РАЗМЕРА.

По стандарту принятому A.P.I. (Американский Нефтяной Институт).

1. *Увеличивается скорость бурения,* так как частицы срезываемого грунта удаляются быстрее при большей струе подаваемого грязевого раствора.
2. *Уменьшаются эксплоатационные расходы грязевого насоса,* так как отсутствует обратное давление, вызываемое сопротивлением с'уженных проходов обыкновенных соединительных замков.

BARRENAS REED EN COJINETE DE RODILLO PARA YACIMIENTOS ROCOSOS

Equilibradas para asegurar un agujero de perforación rectilíneo.

Perforan más rápidamente con menos peso, gracias a la construcción transversal de los rodillos. Esta disposición hace que las fresas de perforación doblen y desgarren la formación a medida que van penetrando, lo que por su parte hace que las fresas se desvien continuamente de la linea recta.

Una circulación positiva del lodo quita rápidamente los trozos desprendidos de la formación explotada, lo que permite a los dientes de la fresa atacar constantemente las nuevas formaciones y evita que la barrena se atasque en las formaciones resbalosas.

UNIONES REED FULL HOLE PARA PERFORACION DE AGUJEROS EXACTOS

Adoptadas como normales por el A.P.I.

1. *Aumentan las velocidades de la perforación,* asegurando la remoción más rápida de los trozos desprendidos de la formación explotada, lo mismo que un flujo más expedito del lodo.
2. *Reducen los gastos de conservación de las bombas de lodo,* por la eliminación de contra-

TREPANS REED A PALIERS A ROULEAUX POUR GISEMENTS ROCALLEUX

Equilibrés pour assurer un trou de forage rectiligne

Forent plus vite avec un poids léger, grâce à la construction transversale des rouleaux; cette disposition amène les fraises de forage à *tordre* et à *déchirer* la formation au fur et à mesure qu'elles *pénètrent* plus avant; ceci résulte du fait que les fraises sont continuellement forcées de s'écarter de la ligne droite.

Une circulation positive des boues entraine rapidement les morceaux détachés de la formation exploitée, ce qui permet aux dents de la fraise d'attaquer constamment de nouvelles formations, et empêche le trépan de se coincer dans les formations collantes.

JOINTS D'OUTILS REED POUR FORAGE DE TROUS A LA COTE

Standard A.P.I. adopté

1. *Augmentent les vitesses de forage,* en assurant l'entrainement plus rapide des morceaux détachés de la formation exploitée, ainsi qu'un écoulement accru de boues.
2. *Réduisent les frais d'entretien des pompes à*

REED ROLLER BEARING ROCK BITS

Balanced for straight hole drilling

Drill faster with light weight because of cross-roller design which makes the cutters, as they are constantly forced to change their direction from a straight line, **twist** and **tear** the formation as they **penetrate.**

Positive slush circulation rapidly removes formation cuttings permitting cutter teeth to continually attack new formation, and prevent balling up of the bit in sticky formations.

REED FULL HOLE TOOL JOINTS
Adopted A.P.I. Standard

1. **Increases drilling speeds** through the more rapid removal of formation cuttings with an increased mud flow.
2. **Lowered mud pump upkeep costs** through elimination of back pressures caused from tool joint restrictions.
3. **Decreases drilling hazards** with a freer mud circulation, assisting in keeping drill stem from getting stuck, particularly at the greater depths.
4. Fits both regular internal upset A.P.I. drill pipe and external upset drill pipe.
5. **Strength assured.** Outside diameter of the pin proportionately increased with the increasing of the bore.

REED REAMERS

The characteristic progressiveness of

3. *Уменьшаются неполадки во время бурения,* так как циркуляционная струя проходит свободнее, не давая бурильной штанге завязнуть в грунтах, что особенно важно при больших глубинах бурения.
4. Они одинаково пригодны для бурильных труб стандарта A.P.I. с внутренней или наружной высадкой.
5. *Крепость замков обеспечена* ввиду большего диаметра пальца в соответствии с большим диаметром внутренней резьбы замка.

РИМЕРЫ REED.

Характерная прогрессивность фирмы REED ROLLER BIT COMPANY в умении предвидеть запросы на более глубокое, более быстрое и более научно-поставленное бурение нигде не выражается так явно, как в их понимании важности получения прямолинейных скважин. В этом направлении фирма REED является пионером, так как она первая соединила фрезерные долотья Reed, имеющие поперечные фрезы, с римерами Reed, имеющими боковые фрезы. Эта комбинация сделана для получения круглых, прямых скважин полного диаметра.

Достоинства: корпус римеров откован из стали специального сплава за

presiones resultantes de las restricciones de las uniones de las herramientas.

3. *Disminuyen los riesgos de la perforación,* asegurando una circulación más libre del lodo y contribuyendo a impedir que el vástago de la perforadora se atasque, sobre todo en las grandes profundidades.
4. Se adaptan tanto a tubo de perforación interna A.P.I. de tipo corriente reforzado y rocado, como a tubo de perforación externa igualmente reforzado y roscado.
5. *Aseguran la resistencia.* El diámetro exterior del pasador se aumenta proporcionalmente en relación con el aumento del diámetro interior.

ESCARIADORES REED

La Reed Roller Bit Company ha dado evidencia de previsión, marchando a la vanguardia del progreso, al satisfacer las exigencias de la perforación más científica, más rápida y al mismo tiempo, más profunda, y sobre todo, al reconocer toda la importancia de la perforación de pozos rigurosamente rectilíneos. Para este fin, la Reed ha ideado y fabricado escariadores para equipar sus barrenas de perforación rápida de rodillo transversal, para satisfacer la demanda de perforación de agujero rectilíneo, perfectamente circular y de misensiones exactas.

boues, par l'élimination des contre-pressions, résultant de calibrages des joints d'outils.

3. *Diminuent les risques du forage,* en assurant une circulation plus libre des boues et en contribuant à empêcher la tige de forage de se coincer, en particulier aux grandes profondeurs.
4. S'adaptent tant au tube de forage interne A.P.I. du type courant renforcé filetage, que du tube de forage externe également renforcé au filetage.
5. *Assurent la résistance.*—Le diamètre extérieur de la goupille est augmenté proportionnellement à l'accroissement de l'alésage.

ASESEURS REED

La Reed Roller Bit Company a fait preuve de prévision, marchant vraiment avec le progrès, en prévoyant les exigences du forage plus scientifique, plus rapide, en même temps que plus profond, et surtout, en reconnaissant toute l'importance du forage de puits rigoureusement rectilignes. Dans ce but, Reed a conçu et mis au point les aléseurs Reed pour en équiper les trépans Reed de forage rapide à rouleau transveral, et cela en vue de forer un trou rectiligne, parfaitement rond, et strictement à la cote.

Caractéristiques: Corps en alliage d'acier forgé, avec raccords intégralement forgés. Espacement

the Reed Roller Bit Company in anticipating the requirements of deeper, faster, and more scientific drilling is nowhere made more manifest than in the recognition of the importance of straight hole drilling. To that end Reed pioneered in equipping Reed Fast Cutting Cross Roller Bits with Reed Reamers for the purpose of maintaining a round, full-gauge, straight hole.

Features: Forged alloy steel body with connections forged integral. Ample slip, elevators and tong space. Large clearance to wall of hole. Simple, dependable Reamer Cutter Assembly; easily changed. Replaceable hardened pin bearing blocks are embedded in Reamer Body and welded in place; a simplified, sturdy construction.

REED HARD AND SOFT FORMATION CORE DRILLS—MODEL B

Simplified Unit Construction: In the interest of simplicity and efficiency, all non-essential parts have been eliminated. Inner barrel and core catchers are carried in the cutter head **permitting the taking of the core close to the bottom of the hole.**

CUTS LARGER DIAMETER CORES with the consequent higher percentage of recovery of larger and longer cores.

EASY AND QUICK TO REMOVE CORES: Simply unscrew the cutter head and the inner barrel slips from the cutter head, making core immediately available.

одно целое с соединительными частями. Достаточные поверхности для захвата плашками, элеватором и ключами. Большое расстояние корпуса от стенок скважины. Простая и надежная установка фрезов; легкая сменяемость. Заменяемые корпуса подшипников с закаленными пальцами утоплены в корпусе римера и приварены на месте; упрощенная и прочная конструкция.

ГРУНТОНОСКИ REED ДЛЯ ТВЕРДЫХ И МЯГКИХ ГРУНТОВ — МОДЕЛЬ В.

Упрощенная конструкция: все несущественные части исключены из грунтоноски, что сделано с целью упрощения ее конструкции и придания ей большей продуктивности. Внутренняя труба и задерживатель грунта укреплены в режущей головке, благодаря чему можно отбирать колонку грунта близко ко дну скважины.

СРЕЗЫВАЕТ КОЛОНКУ ГРУНТА БОЛЬШЕГО ДИАМЕТРА, благодаря чему получается большой процент больших и более длинных колонок.

КОЛОНКИ ЛЕГКО И БЫСТРО ИЗВЛЕКАЮТСЯ: для этого надо только отвернуть режущую головку и внутренняя труба высказывает на нее и немедленно освобождает колонку грунта.

Características: Cuerpo de aleación de acero forjado con conexiones integralmente forjadas. Amplio espacio para sujectadores, elevadores y tenazas. Amplitud en relación con la pared del pozo. Montaje sencillo y seguro de las fresas en el escariador; reemplazo fácil. Los bloques del cojinete del pasador están endurecidos y son intercambiables, quedando embutidos en el cuerpo del escariador y soldados en esta posición; una construcción firme y simplificada.

BARRENAS REED PARA SACAR MUESTRAS DE FORMACIONES DURAS O BLANDAS—MODELO B

Construcción simplificada de los elementos: Para asegurar un máximo de sencillez y eficacia, todas las piezas no esenciales han sido suprimidas. El tubo interior y los recogedores de muestras van en la cabeza fresadora, lo que permite *tomar una muestra cerca del fondo del agujero perforado.*

CORTA MUESTRAS DE MAYOR DIAMETRO, lo que permite obtener un mājor porcentaje de muestras más grandes y más largas.

LAS MUESTRAS SE SACAN CON MAYOR FACILIDAD Y RAPIDEZ. Sencillamente destornillando la cabeza fresadora, y el tubo cortador de muestra sale por esta cabeza, entrengando así inmediatamente la muestra obtenida.

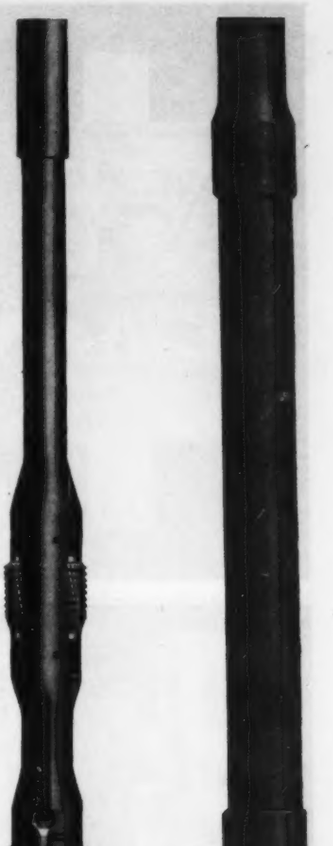
amplement suffisant pour pinces, ascenseurs et coulisseaux. Dégagement trés suffisant par rapport à la paroi du puits. Montage simple et de tout repos des fraises d'aléseur; remplacement facile. Blocs de palier à goupilles, durcis et interchangeables, qui sont encastrés dans le corps de l'aléseur et soudés dans cette position; une construction robuste **et simplifiée.**

MECHES DE CAROTTAGE REED POUR FORMATIONS DURES ET MOLLES—MODELE B

Construction simplifiée des éléments: Afin d'assurer un maximum de simplicité et d'efficacité, toutes les pièces non essentielles ont été supprimées. Le tube carotteur intérieur et les attrapecarottes sont portés par la tête de fraisage, *ce qui permet de prélever une carotte tout près du fond du trou de forage.*

DECOUPE DES CAROTTES D'UN PLUS GRAND DIAMETRE ce qui permet de prélever un meilleur pourcentage de carottes plus fortes et plus longues.

ENLEVEMENT FACILE ET RAPIDE DES CAROTTES: Il suffit de dévisser la tête de fraisage, et le tube carotteur intérieur glisse aussitôt dehors de la tête de fraisage, libérant ainsi immédiatement la carotte.



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REED REAMERS

REED SOFT FORMATION CUTTER HEAD

REED FULL HOLE TOOL JOINTS Adopted A.P.I. Standard

REED ROLLER BIT COMPANY, Houston, Texas, U. S. A.

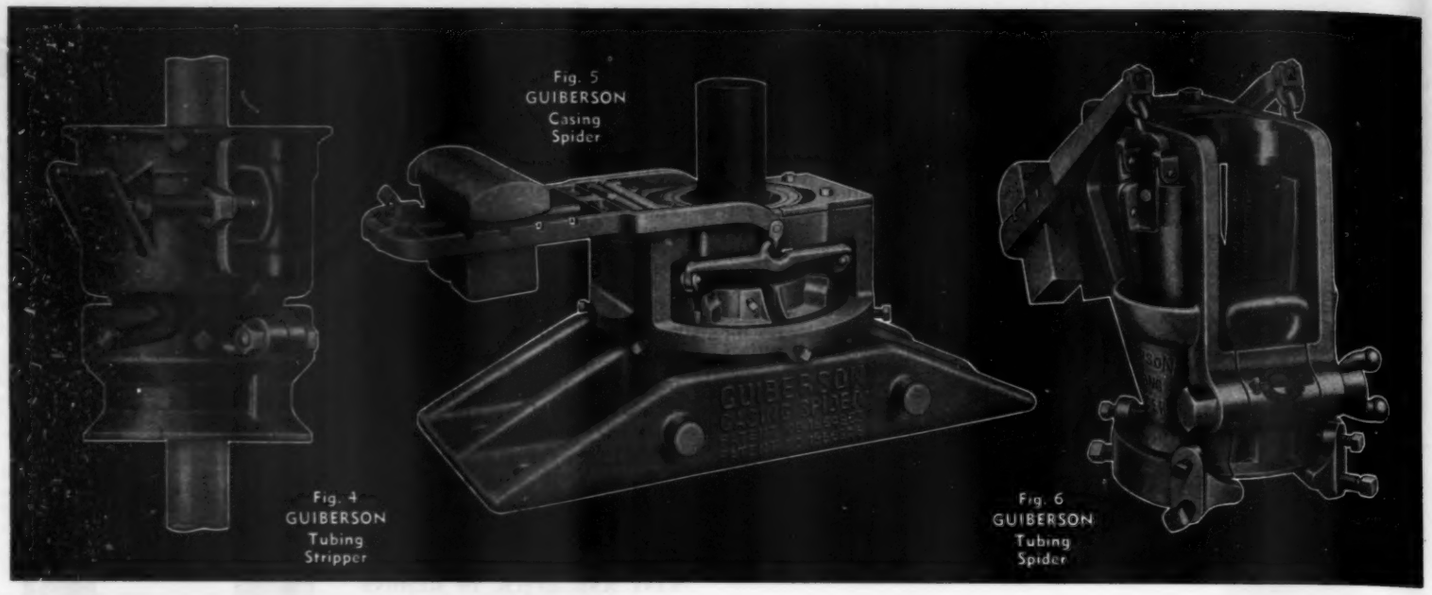


Fig. 4
GUIBERSON
Tubing
Stripper

Fig. 5
GUIBERSON
Casing
Spider

Fig. 6
GUIBERSON
Tubing
Spider

Fig. 1
Type C
GUIBERSON Control
Head Packers

Fig. 2
Type G

Fig. 3
GUIBERSON
Type E
Swab

GUIBERSON PATENTED OIL FIELD SPECIALTIES

Supreme merit has been the GUIBERSON standard, from the start. Guiberson has introduced only tools which offered outstanding improvements. These policies have brought Guiberson patented tools into world-wide use.

GUIBERSON SWAB. (Fig. 1) Does most of the world's swabbing. The only swab with flexible cups which yield readily running in and utilize fluid pressure to lift full load.

GUIBERSON CONTROL-HEAD PACKER. (Figs. 2 and 3) Runs in against heavy flows, as valve at top permits flow between shell and tubing until packer is set.

GUIBERSON TUBING STRIPPER. (Fig. 4) For preventing gas and oil leakage and stripping oil from tubing.

GUIBERSON CASING AND TUBING SPIDERS (Figs. 5 and 6) Offer two exclusive features, adjustable guide head which guides pipe into center of bore, and weighted lever for handling slips.

GUIBERSON WIRE LINE OIL SAVER. (Fig. 7) Unique in that rubbers are adjustable simultaneously by one crank and their pressure automatically equalized. Rubbers can be renewed under pressure.

GUIBERSON TUBING OIL SAVER. (Fig. 8) Of all steel construction. Opens wide to admit packer or tubing catcher.

GUIBERSON DISC BIT. (Fig. 9) Fastest cutting disc bit. Cutters have offset axes making them self-cleaning.

GUIBERSON TUBING CATCHER. (Fig. 10) The pioneer, most highly perfected and largest selling tubing catcher. Hangs free until tubing drops, then automatically grips casing stopping fall within 3 inches.

GUIBERSON UNDERREAMER. (Fig. 11) Strongest on the market. Cutters interlock with head. Greatest down-thrust bearing surface between head and cutters.

GUIBERSON SPIRAL BOTTOM WATER PLUG. (Fig. 12) Only plug which takes a screw-like grip. As plug is collapsed, spirals expand and bite into walls of well.

Also Casing Tongs, Spiral Tubing and Casing Packers. Descriptive bulletins on request. Or see our complete catalog in 1936 "Composite Catalog of Oil Field and Pipe Line Equipment."

Especialides Patentadas Guiberson Para Campos Petroliferos

Mérito supremo ha sido la norma de la GUIBERSON desde el principio. La Guiberson ha introducido solamente herramientas que ofrecen refinamientos evidentes. Este método ha dado a las herramientas Guiberson patentadas una aplicación extensa en todo el mundo.

ESCOBELLON GUIBERSON. (Fig. 1). Hace casi toda la limpieza del mundo. El único escobellón con tazas flexibles que funciona con facilidad utilizando la presión liquida para levantar la carga completa.

CABEZAL OBTURADOR GUIBERSON. (Figs. 2 y 3). Corre contra fuerte corriente, pues su válvula superior permite el paso entre el casco o cuerpo y la tubería hasta que el obturador se ajusta.

DESGUARNECEDOR DE TUBERIA GUIBERSON. (Fig. 4). Para evitar el escape de gas y petróleo y para extraer petróleo de la tubería.

REVESTIMIENTOS Y TUBERIA. (Figs. 5 y 6). CRUCETAS O ARAÑAS GUIBERSON PARA Ofrecen dos rasgos exclusivos: cabeza de guia ajustable, que dirige el tubo al centro de la perforación, y palanca con peso para el manejo de sujetadores.

ECONOMIZADOR DE PETRÓLEO PARA CABLES GUIBERSON. (Fig. 7). El único en que las piezas de caucho se ajustan simultáneamente por una manivela, igualándose automáticamente su presión. Las piezas de caucho pueden renovarse bajo presión.

ECONOMIZADOR DE PETRÓLEO DE TUBERIA GUIBERSON. (Fig. 8). Construcción enteramente de acero. Se abre del todo para admitir el cabezal obturador o el atrapador de tubería.

BOCA DE BARRENA DE DISCO GUIBERSON (Fig. 9). La boca de barrena de disco de corte más rápido. Los cortadores tienen ejes descentrados para su limpieza automática.

ATRAPADOR DE TUBERIA GUIBERSON. (Fig. 10). Este es el atrapador de tubería original más refinado y de mayor venta en el mercado. Se sujeta sin apretar, hastue que el tubo cae, cuando automáticamente lo agarra parando su caida dentro de 3 pulgadas.

ESCARIADOR GUIBERSON. (Fig. 11). El más firme del mercado. Las fresas se entrelazan con la cabeza. La mayor superficie de contacto de empuje hacia abajo entre la cabeza y las fresas o cortadores.

TAPÓN ESPIRAL GUIBERSON PARA AGUA DE FONDO. (Fig. 12). El único tapon con cierre semejante a un tornillo. Cuando el tapón se contrae, las espiras se extienden y muerden la pared del pozo.

También la Guiberson ofrece un surtido completo de tenazas de revestimiento, tubería espiral y obturadores de revestimiento. Boletin descriptivo o solicitud, o sírvase ver nuestro catálogo completo en el "Catálogo Compuesto de Equipo de Campo y Línea de Petróleo" de 1936.

THE GUIBERSON CORPORATION

Houston, Texas -:- Tulsa, Okla. -:- Ponca City, Okla.

THE GUIBERSON

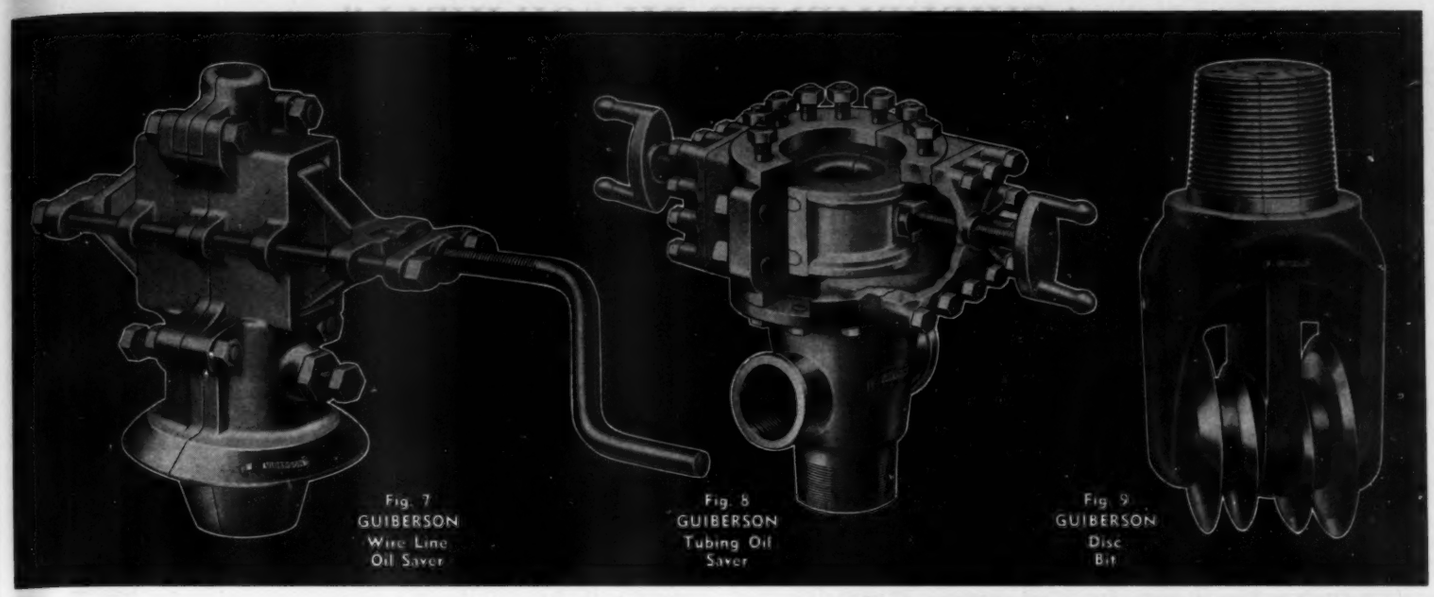


Fig. 7 GUIBERSON Wire Line Oil Saver

Fig. 8 GUIBERSON Tubing Oil Saver

Fig. 9 GUIBERSON Disc Bit

Патентованные инструменты фирмы GUIBERSON для нефтяных промыслов.

Наивысшее качество было постоянным девизом фирмы GUIBERSON с самого начала ее существования. Фирма GUIBERSON выпускает на рынок только чрезвычайно усовершенствованные инструменты. Этот принцип привел к тому, что патентованные инструменты GUIBERSON употребляются по всему миру.

СВАБЫ GUIBERSON (фиг. 1). Свабирование по всему миру производится в большинстве случаев этими свабами. Они являются единственными свабами с гибкими манжетами и легко спускаются в скважину, утилизируя давление жидкости в ней для под'ема полной нагрузки.

ПАКЕР GUIBERSON ДЛЯ КОНТРОЛЬНЫХ ГОЛОВОК (фиг. 2 и 3). Его можно опускать в скважину когда на нее поступает сильная струя жидкости, так как клапан, находящийся наверху пакера, позволяет струе жидкости пройти между кожухом и насосными трубами до того момента, пока пакер не стал на место.

ОЧИСТИТЕЛИ GUIBERSON ДЛЯ НАСОСНЫХ ТРУБ (фиг. 4) служат для предохранения утечки газа и нефти и для выпуска нефти из насосных труб.

СПАЙДЕРЫ GUIBERSON ДЛЯ ОБСАДНЫХ И НАСОСНЫХ ТРУБ (фиг. 5 и 6). Эти спайдеры имеют два исключительных достоинства: регулируемую направляющую головку, которая направляет трубы в центр отверстия скважины и рычаг с противовесом для переноски вкладышей.

ПРЕДОХРАНИТЕЛЬНЫЕ САЛЬНИКИ GUIBERSON ДЛЯ СТАЛЬНОГО КАНАТА (фиг. 7). Они являются единственными сальниками, в которых резиновые прокладки регулируются одновременно при помощи одного рычага, причем их давление автоматически сравнивается. Резины можно заменять под давлением.

ПРЕДОХРАНИТЕЛЬНЫЕ САЛЬНИКИ GUIBERSON ДЛЯ НАСОСНЫХ ТРУБ (фиг. 8). Эти сальники целиком изготовлены из стали. Они имеют большое открытие для пропуска пакера или труболовки для насосных труб.

ДИСКОВОЕ ДОЛОТО GUIBERSON (фиг. 9). Самое быстрорежущее дисковое долото. Резцы имеют отклоненные оси, благодаря чему они самоочищаются.

ТРУБОЛОВКА GUIBERSON ДЛЯ НАСОСНЫХ ТРУБ (фиг. 10). Самая первая и наиболее усовершенствованная труболовка, которая продается в больших количествах, чем какая-либо другая. Она висит свободно до момента падения труб, во время какового она автоматически захватывает обсадные трубы и останавливает падение на протяжении 3-х дюймов.

РАСШИРИТЕЛЬ GUIBERSON (фиг. 11). Это наиболее прочный расширитель из существующих на рынке. Резцы взаимно замыкаются с головкой расширителя. Упорный подшипник имеет самую большую площадь соприкосновения между головкой расширителя и резцами.

СПИРАЛЬНАЯ НИЖНЯЯ ВОДЯНАЯ ПРОБКА GUIBERSON (фиг. 12). Это единственная пробка, которая захватывает по принципу подобному винту. Когда пробка сбрасывается, то спирали расширяются и вонзаются в стенки скважины.

Фирма также изготовляет ключи для обсадных труб и спиральные пакеры для насосных и обсадных труб. Каталог с описанием наших изделий высылается по требованию. Просим Вас просмотреть наш комплектный каталог 1936 года под названием "Composite Catalog of Oil Field and Pipe Line Equipment."

Specialites Brevetées Guiberson De Champs De Pétrole

Le mérite suprême a été le standard visé par GUIBERSON, dès le début. Guiberson n'a jamais lancé que des outils qui offraient des perfectionnements de premier ordre. Cette ligne de conduite a tendu à diffuser l'emploi des outils brevetés Guiberson dans le monde entier.

TORCHON GUIBERSON (Fig. 1) Effectue la presque totalité du torchonnage du monde entier. Le seul torchon à cuvettes souples dont l'introduction est facile et qui utilise la pression liquide pour soulever la charge totale.

TAMPON DE TÊTE DE COMMANDE GUIBERSON. (Figs. 2 et 3) Peut s'introduire contre un fort jaillissement, étant donné que la soupape du dessus permet l'écoulement entre le corps et le tubage jusqu'à la mise en place du tampon.

DÉPOUILLEUR DE TUBAGE GUIBERSON. (Fig. 4) Pour prévenir les fuites de gaz et de pétrole, et dépouiller le pétrole du tubage.

CROISILLONS GUIBERSON DE REVÊTEMENT ET TUBAGE (Figs. 5 et 6). Ils offrent deux dispositifs exclusifs, une tête-guide réglable qui guide le tuyau au centre de l'alésage, et un levier lesté pour manier les patins.

SAUVE-PÉTROLE GUIBERSON A CABLE METALLIQUE. (Fig. 7) Unique en son genre, en ce que les caoutchoucs en sont réglables simultanément au moyen d'une seule manivelle et en ce que leur pression est équilibrée automatiquement. On peut remplacer les caoutchoucs sous pression.

SAUVE-PÉTROLE GUIBERSON DE TUBAGE. (Fig. 8) Entièrement en acier. S'ouvre tout grand pour recevoir la garniture ou l'attrape-tubage.

TRÉPAN A DISQUE GUIBERSON. (Fig. 9) Le trépan à disque de la plus grande vitesse de pénétration connue. Les fraises ont des axes décalés, ce qui en assure le nettoyage automatique.

ATTRAPE-TUBAGE GUIBERSON. (Fig. 10) L'attrape-tubage pionnier, le plus perfectionné et le plus vendu sur le marché. Pend librement jusqu'à ce que le tubage soit descendu, agrippe alors automatiquement le revêtement, arrêtant sa chute sur une distance de 3 pouces.

SOUS-ALESOIR GUIBERSON. (Fig. 11) Le plus robuste sur le marché. Les fraises enclenchent avec la tête. Maximum de surface portante à poussée vers le bas entre la tête et les fraises.

TAMPON A EAU GUIBERSON DE FOND A SPIRALE. (Fig. 12) Le seul tampon connu qui ait un dispositif de grippage ressemblant celui de la vis. Comme ce tampon est télescopable, les spirales s'allongent et mordent dans les parois du puits.

Aussi des tenailles de revêtements, tubage à spirales et garnitures de revêtements. Fascicules descriptifs sur demande. Ou consultez notre catalogue complet de 1936, "Catalogue général du matériel de champs et de canalisations de pétrole."

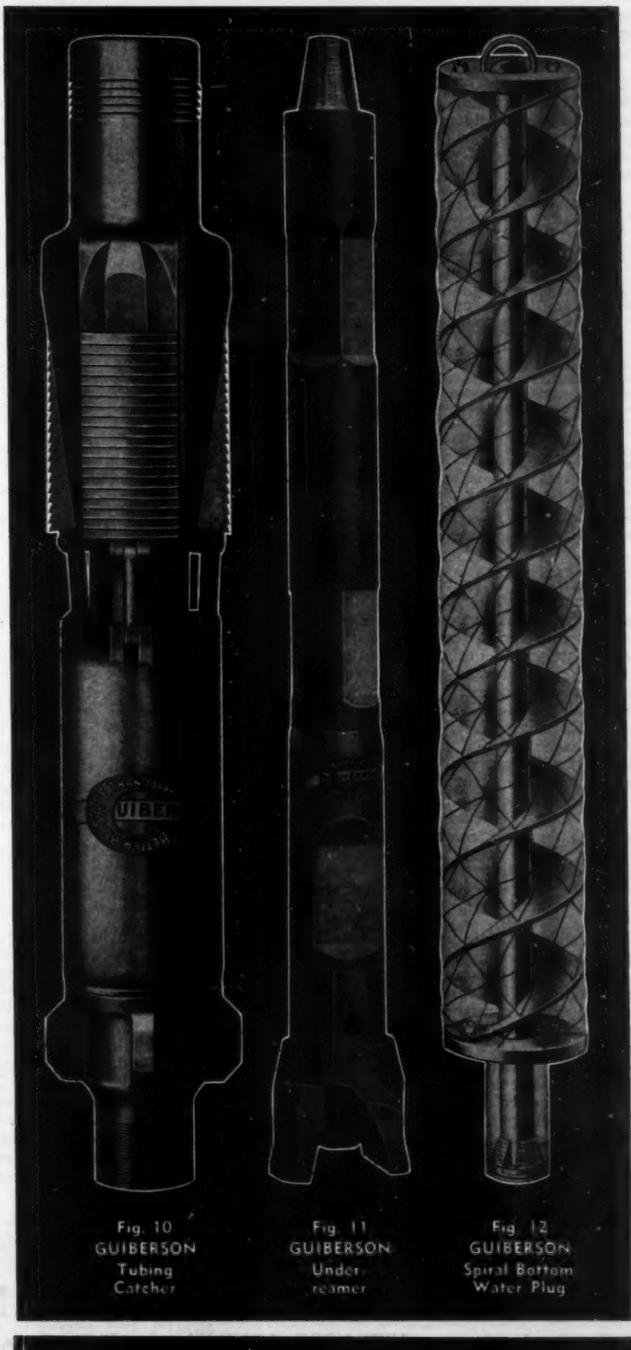


Fig. 10 GUIBERSON Tubing Catcher

Fig. 11 GUIBERSON Under-reamer

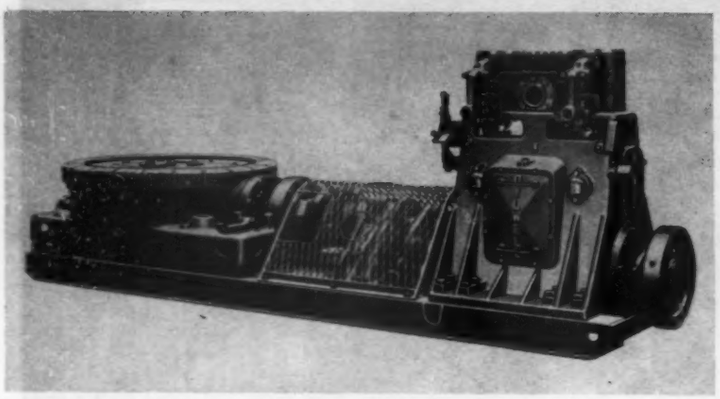
Fig. 12 GUIBERSON Spiral Bottom Water Plug

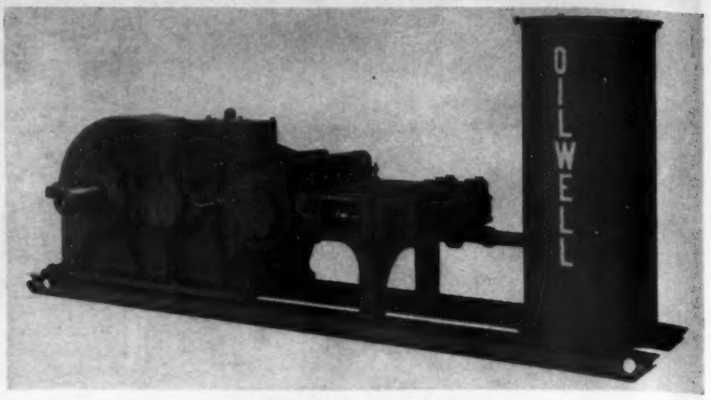
BOX 1106, DALLAS, TEXAS, U. S. A.

Newark, Ohio -:- **Los Angeles, California**

CORPORATION

ACHIEVEMENTS BY "OILWELL"





A DIRECT-DRIVEN ROTARY REVOLUTIONIZES DRILLING PRACTICES

"Oilwell" developed the first Direct-Driven Rotary Drilling Unit which has come through like a "thoroughbred" under the most severe drilling conditions. The unit, consisting of a rotary and vertical twin cylinder steam engine mounted on skids, is compact, portable and easily installed. The engine with variable cut-off makes use of the expansive force of steam. Inertia and momentum of moving parts are kept to a minimum, thus insuring flexible, sensitive operation. At 300 lb. steam pressure, 68% cut-off, and 400 R.P.M., the engine develops 310 horsepower.

The utility and convenience of this unit, which may be furnished with either an "Oilwell" Model 35—27½" Straight Oilbath Rotary or "Oilwell" Model 34—26" Make & Break Rotary, are readily recognized by the driller. Outstanding advantages, not previously mentioned, are—eliminates chain noise; simplifies drilling the rat hole; makes spudding easier and more effective; provides effective means of "drilling up"; saves time in breaking out drill pipe—no clutches to throw, nor is engine reversed; pays for itself in tangible savings.

For complete information, write for Bulletin No. 145.

Фирма "Oilwell" построила первую установку для вращательного бурения, в которой ротор непосредственно соединен с двигателем. Этот бурильный станок работает чрезвычайно надежно при самых тяжелых условиях бурения. Вся установка состоит из ротора и вертикальной двухцилиндровой паровой машины, монтированных на салазках. Она чрезвычайно компактная, переносная и легко устанавливается. Паровая машина с варьирующей отсечкой дает возможность хорошо использовать энергию расширения пара. Инерция и скорость движущихся частей доведены до минимума, что обеспечивает плавность и надежность работы. При давлении пара в 300 англо-фунтов, 68% отсечки и 400 оборотах в минуту, эта паровая машина развивает 310 лош. сил.

Выгодность и удобство работы этой бурильной установкой были быстро признаны буровыми мастерами. Она может быть снабжена либо ротором "Oilwell" модели 35-27½", работающим в масляной ванне, либо ротором "Oilwell" модели 34-26" типа Make & Break. Выдающиеся достоинства, о которых не было упомянуто раньше, следующие: отсутствие шума цепи; упрощение бурения скважины для хранения бурильной штанги (rat hole); более легкая и более эффективная работа расхождения долота вверх и вниз; продуктивный метод работы фрезами для размельчения потерянных инструментов; экономия времени при развертке бурильных труб, так как при этом не приходится выключать соединительной муфты двигателя или давать машине реверсивный ход; вся установка быстро окупает себя значительной экономией в работе.

Для полных информаций требуйте наш бюллетень № 145.

"Oilwell" fué el primer grupo de perforación rotatoria de propulsión directa, que dió los más espléndidos resultados bajo las más severas condiciones de sondaje. Este grupo, que consta de una rotatoria y un motor de vapor de cilindro gemelo vertical, con montaje en patines, es portátil, compacto y de muy fácil instalación. El motor con regulador variable aprovecha la fuerza de dilatación del vapor. La inercia y el momento de las piezas móviles se mantienen en grado mínimo, asegurándose así un funcionamiento flexible muy obediente. A una presión de 300 lb. de vapor, con 68% de admisión y 400 r.p.m., el motor desarrolla 310 c. de f.

La utilidad y conveniencia de este grupo, que puede suministrarse con una rotatoria continua "Oilwell" modelo 35 de 27½" o con una rotatoria de acción intermitente "Oilwell" modelo 34 de 26", es admitida en el acto por todo petrolero de experiencia. Importantes ventajas, no señaladas anteriormente, son: elimina el ruido de cadena; simplifica la perforación inicial; hace más fácil y efectiva la limpieza; provee un medio efectivo para levantar la sonda; ahorra tiempo en la salida del tubo de perforación—no hay embragues que aplicar ni motor que poner en marcha invertida; resarce su precio por los ahorros que produce en poco tiempo.

Para información completa, pídanos nuestro Boletin No. 145.

"Oilwell" a créé le premier groupe de forage rotatif à commande directe, qui, à la manière d'un pur-sang, a résisté dans les conditions de forage les plus dures. Ce groupe, qui consiste d'une machine à vapeur rotative et verticale à cylindres jumelés, montée sur patins, est à la fois compacte, portative et d'installation facile. Le groupe avec admission variable tire parti de la force d'expansion de la vapeur. L'inertie et l'impulsion acquise des pièces en mouvement sont maintenus à un strict minimum, ce qui assure un fonctionnement souple et sensible. A une pression de vapeur de 300 lb., admission 68% et 400 t/m., la machine développe 310 chevaux.

L'utilité et la commodité de ce groupe, qui peut être fourni soit avec un groupe rotatif ordinaire à bain d'huile de 27½ pouces, "Oilwell" Modèle 35, soit avec un groupe rotatif à admission et interruption de 26 pouces, "Oilwell" Modèle 34, sautent aux yeux de l'ouvrier foreur. Parmi les autres avantages saillants de ce groupe, on peut citer: élimination de bruits de chaine; forage simplifié du trou de carottage; écoppage rendu plus facile et plus efficace; moyen efficace pour le forage vertical; économie de temps lors du démontage du tuyau de forage—aucun embrayage à enclencher, ni de moteur à renverser; compense rapidement sa valeur par des économies tangibles.

Pour renseignements complets, demandez-nous fascicule No. 145.

"OILWELL" BRANTLY ROTARY FEED CONTROL

The "Oilwell" Brantly Rotary Feed Control is powered by gravity and therefore operating costs are not increased. The power is derived solely from the tension on the drilling line from which the drill stem is suspended. The drumshaft torque, resulting from tension on the drilling line, is utilized to drive a multi-cylinder pump connected to the drumshaft through a sprocket, chain, and gearbox drive. The pump suction and discharge are connected by a hydraulic return circulating system with a volume control manifold located conveniently to the driller. The unit type manifold has four orifice needle valves, graduated in size, to control accurately the volume of fluid circulated. The speed of the pump is directly proportional to the volume of fluid circulated as is also the rate at which the wire line is unspooled. With all orifice valves closed, the pump will stall, rotation of the hoisting drum will cease as well as downward travel of the drill bit. With the orifice needle valves once set, a uniform rate of feed will continue until the valve setting is changed. When encountering a new stratum, as indicated by the weight indicator, the driller changes the rate of feed by adjusting the needle valve orifice.

For complete information, write for Bulletin No. 135.

Установка "Oilwell" Brantly для контроля подачи грязевого раствора при вращательном бурении приводится в действие весом подвешенных бурильных инструментов, вследствие чего оперативные расходы не увеличиваются. Энергия получается исключительно от натянутого бурильного каната, на котором подвешена бурильная штанга. Крутящий момент, возникающий на инструментальном барабане и вызываемый натяжением бурильного каната, утилизируется для приведения в действие дополнительного многоцилиндрового насоса, соединенного с валом инструментального барабана при помощи шестеренки, цепи и коробки скоростей. Прием и выкид этого насоса соединены с гидравлической возвратной циркуляционной системой, имеющей на трубопроводе контрольное приспособление, расположенное на месте, удобном для бурового мастера. Этот трубопровод имеет четыре задвижки с контрольными игольчатыми отверстиями калиброванных диаметров, при помощи которых точно контролируется об'ем циркулирующей жидкости. Скорость хода насоса прямо пропорциональна об'ему циркулирующего раствора, точно также как и скорость с которой разматывается канат инструментального барабана. Когда все контрольные отверстия задвижек закрыты, то насос останавливается, точно также прекращается вращение инструментального барабана и спуск долота. Когда контрольные отверстия задвижек поставлены на определенное открытие, то грязевой раствор будет поступать равномерной струей до тех пор, пока размер открытия не будет изменен. Когда долото входит в новые породы, на что указывает индикатор веса, то буровой мастер изменяет скорость подачи грязевого раствора, для чего ему нужно только отрегулировать степень открытия контрольных отверстий задвижек.

Для полных информаций требуйте наш бюллетень № 135.

El Control de Alimentación de Rotatoria Brantly "Oilwell" acciona por gravedad y por esta razón no se aumenta el costo de funcionamiento. La fuerza se deriva unicamente de la tensión sobre la línea de perforación de la cual está suspendido el vástago del taladro. El esfuerzo de rotación del eje del tambor, que resulta de la tensión sobre la línea de perforación, se utiliza para hacer funcionar una bomba multicilíndrica conectada al eje del tambor por medio de rueda dentada, cadena y mecanismo de propulsión. La aspiración y la descarga de la bomba están conectadas por un sistema de circulación de retorno hidráulico, a un múltiple de control de volumen colocado convenientemente al alcance del operario. El múltiple de tipo integrante tiene cuatro orificios de válvula de aguja, en tamaños graduados, para gobernar exactamente el volúmen de líquido en circulación. La velocidad de la bomba está en relación directa con el volumen de líquido circulado, lo mismo que con el régimen de salida del cable de alambre. Con todas las válvulas de orificio cerradas, la bomba se para y también cesa la rotación del tambor de izamiento con la bajada de la berrena. Después de ajustados los orificios de las válvulas de aguja, se establece un régimen uniforme de alimentación contínua hasta que el ajuste de las válvulas se altere de nuevo. Al encontrarse una nueva capa o estrata, indicada por el indicador de peso, el operario cambia el régimen de alimentación reajustando el orificio de la válvula de aguja.

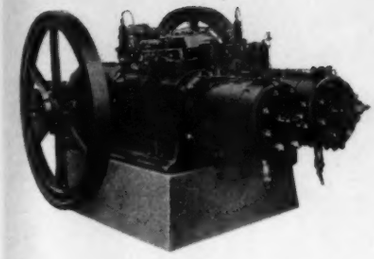
Para informacion completa, pídanos nuestro Boletín No. 135.

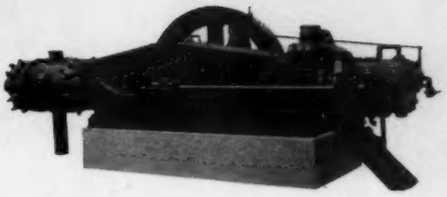
Le contrôleur d'alimentation rotatif Brantly "Oilwell" est actionné par gravité, ce qui fait que les frais d'exploitation ne sont pas augmentés par son emploi. Son énergie est tirée uniquement de la tension de la ligne de forage à laquelle le tige de forage est suspendue. Le moment de torsion de l'arbre de tambour, qui résulte de la tension sur la ligne de forage, est utilisé à actionner une pompe multicylindre reliée à l'arbre de tambour par l'entremise d'un pignon, d'une chaine et d'une commande à boite d'engrenages. L'aspiration et le refoulement de la pompe sont reliés par un système hydraulique de circulation de retour à un collecteur de contrôle du volume, situé à une place commode pour le foreur. Le collecteur du type unitaire possède quatre soupapes à aiguille à orifice, graduées en grandeur, servant à régler exactement le volume de liquide en circulation. La vitesse de la pompe est directement proportionnelle au volume du liquide circulé, de même que la vitesse à laquelle le fil se dévide. Toutes les soupapes à orifice étant fermées, la pompe calera, la rotation du tambour du palan cessera, ainsi que la progression vers le bas du trépan de forage. Une fois les soupapes à aiguille à orifice réglées, un taux uniforme d'alimentation se maintiendra jusqu'à ce qu'on vienne à changer le réglage des soupapes. Quand on se heurte à une nouvelle couche géologique, ce que révèle l'indicateur de poids, le foreur change le taux d'avance en réglant l'orifice de la soupape à aiguille.

Pour renseignements complets, demandez-nous le fascicule No. 135.

OIL WELL SUPPLY COMPANY

Oil City, Pa., U.S.A. **NEW YORK—LONDON** **Dallas, Texas, U.S.A.**





POWER LEADERS IN THE OIL FIELDS OF THE WORLD

Cooper-Bessemer has been building power machinery for over one hundred years. Ever since Colonel Drake completed his historic well, this company has had as its major interest the building of engines and compressors for the oil fields.

There is a Cooper-Bessemer gas or Diesel engine for every oil-field job. The line includes two and four-cycle gas engines from 15 to 1,500 H.P.; four-cycle convertible gas or Diesel engines from 30 to 1,200 H.P.; four-cycle Diesel engines from 75 to 1,200 H.P.

During the last four years the entire line of Cooper-Bessemer Diesels has been modernized. Vital parts have been still further strengthened. By the judicious use of modern materials, weights have been reduced. Working parts have been made more accessible. The new Cooper-Bessemer patented atmospheric-relief injection system itself represents a long step forward in Diesel-engine development. Cooper-Bessemer Diesels have remarkable operating records in refineries, on oil pipe lines, driving electric generators, on Diesel-electric drilling rigs, driving water pumps, and no beam pumping.

Local representatives are available in nearly every oil field in the world. First requests for information should be addressed to the main office at Mt. Vernon, Ohio, U.S.A.

(Above, center.) Texas Company's power barge "Energy" has drilled fourteen rotary wells with Cooper-Bessemer Diesel-electric sets. Two Type FP-6,242-H.P. (514 r.p.m.) Diesel engines drive two 219-K.V.A. generators. Five barrels of fuel oil will run both engines during 24 hours of mud-pumping and drilling.

(Above, left.) Type—GA Cooper-Bessemer Diesel. A simple, reliable and economical pumping engine, designed especially for the oil fields. Two-cycle, available in one or two cylinders, rated 30 to 150 H.P. Readily converted to operate on gas.

(Above, right.) The new Type 12—the result of three years of effort to produce an outstanding gas-injection, two-cycle compressor unit. Greater accessibility; greater overload capacity, and better overall operating economy than any other compressor unit of similar size. Built as a single-cylinder unit rated 115 H.P., and as a twin-cylinder unit rated 230 H.P.

Фирма Cooper-Bessemer втечение более ста лет строит двигатели и компрессоры. С тех самых пор, когда еще полковник Drake закончил бурение своей исторической скважины, эта фирма уже имела своей главной задачей постройку двигателей и компрессоров для нефтяных промыслов.

Для любых работ, какие могут встретиться на нефтяных промыслах, имеется газо-мотор или дизель фирмы Cooper-Bessemer. К двигателям, изготовляемым этой фирмой, относятся: двух- и четырех-тактные газо-моторы от 15 до 1500 лош. сил; четырех-тактные газо-моторы, способные служить как Дизели, от 30 до 1200 лош. сил; четырех-тактные Дизели от 75 до 1200 лош. сил.

В продолжение последних четырех лет все Дизели Cooper-Bessemer были модернизованы. Ответственные части еще более укреплены. Благодаря правильному подбору новейших материалов, вес машин был уменьшен. Рабочие части сделаны более доступными. Новая патентованная система свободно-атмосферного впрыскивания Cooper-Bessemer сама по себе представляет большой шаг вперед в смысле усовершенствования Дизель-моторов. Дизели Cooper-Bessemer дали выдающиеся результаты в работе на перегонных заводах, нефтепроводах, для приведения в действие генераторов, на Дизель-генераторных бурильных установках, водяных насосах и при откачке нефти балансирами.

Почти на любых нефтяных промыслах всего мира имеется местный представитель фирмы Cooper-Bessemer. С первым запросом просим обращаться в главную контору в гор. Mt. Vernon, Ohio, U.S.A.

На средней иллюстрации изображена силовая станция баржи "Energy" фирмы Texas Company, состоящая из Дизель-генераторных установок, при помощи которых пробурено вращательным способом четырнадцать буровых скважин. Два Дизеля типа FP-6, по 242 лош. силы приводят в действие два генератора по 219 K.V.A. Втечение 24-х часов работы грязевых насосов и бурильного станка, оба двигателя сжигают всего пять баррелей сырой нефти.

На левой иллюстрации изображен Дизель Cooper-Bessemer типа GA. Простой, надежный и экономный двигатель для насосов, сконструированный специально для нефтяных промыслов. Этот двухтактный двигатель строится с одним или двумя цилиндрами, мощностью от 30 до 150 лош. сил. Его легко перевести на работу газом.

На правой иллюстрации изображена новая выдающаяся двух-тактная компрессорная установка типа 12, работающая газом, которая является результатом трех-летней работы. Она обладает большей гибкостью, большей способностью работать при перегрузках и большей экономностью в эксплоатации, чем какая-либо другая компрессорная установка этой мощности. Эти двигатели строятся одноцилиндрового типа в 115 лош. сил и с двумя цилиндрами в 230 лош. сил.

La Cooper-Bessemer ha venido construyendo motores desde hace más de cien años. Desde el día en que el Coronel Drake terminó su histórico pozo, esta compñía ha dedicado su principal atención a la construcción de motores y compresores para campos petrolíferos.

Hay un motor Cooper-Bessemer de gas o de tipo diésel para cada trabajo de campo petrolífero. El surtido comprende motores de gas de dos y de cuatro ciclos, de 15 a 1.500 c. de f.; motores de gas de cuatro ciclos de tipo convertible y de tipo diésel de 30 a 1.200 c. de f.; motores diésel de cuatro ciclos de 75 a 1.200 c. de f.

Durante estos últimos cuatro años, se ha modernizado el completo surtido de motores Cooper-Bessemer de tipo diésel. Las piezas principales se han reforzado más todavía. Mediante el racional empleo de materiales modernos, los pesos se han reducido notablemente. Las piezas móviles son ahora más accesibles. El nuevo sistema de inyección de desahogo atmosférico, patentado por la Cooper-Bessemer, es de por sí, un refinamiento notable en la construcción de motores diésel. Los motores de este tipo, fabricados por la Cooper-Bessemer, tienen una brillante hoja de servicio en refinerías y sistemas oleoconductores, accionando generadores eléctricos, y en instalaciones de perforación eléctrica-diésel, accionando directamente bombas de agua.

Hay representantes locales en casi todo yacimiento petrolífero del mundo. Las primeras solicitudes de información deben siempre dirigirse a la oficina principal en Mt. Vernon, Ohio, E.U.A.

(Arriba, al centro.) Barca de fuerza "Energy" de la Texas Company, que ha perforado catorce pozos rotatorios con grupos eléctricos Cooper-Bessemer Diésel. Dos motores diésel de tipo FP-6,242-H.P. (514 r.p.m.) dan funcionamiento a dos generadores de 219 K.V.A. Cinco barriles de aceite combustible se consumen en ambos motores durante 24 horas de trabajo de bomba de cieno y perforación.

(Arriba, a la izquierda.) Motor diésel Cooper-Bessemer, tipo GA. Una bomba mecánica sencilla, segura y económica, proyectada especialmente para explotaciones petrolíferas. En tipo de dos ciclos se ofrece en modelo monocilíndrico y bicilíndrico, de 30 a 150 c. de f. Puede convertirse con facilidad para funcionar con gas.

(Arriba, a la derecha.) El nuevo tipo 12—el resultado de tres años de esfuerzos dedicados a la producción de una compresora de dos ciclos de inyección de gas de sobresalientes méritos. Mayor accesibilidad; mayor capacidad de sobrecarga y mayor economía en funcionamiento general que toda otra compresora de igual tamaño. El modelo monocilíndrico tiene 115 c. de f. y el modelo bicilíndrico, 230 c. de f.

Cooper-Bessemer fabrique des groupes-force depuis plus d'un siècle. Depuis le moment où Colonel Drake terminait son puits devenu historique, cette compagnie a tenu un rang éminent dans la construction des moteurs et des compresseurs pour les champs de pétrole.

Cooper-Bessemer a prévu un moteur à essence ou du type Diesel pour chaque opération sur chantier pétrolier. La série offerte comprend des moteurs à essence à deux et à quatre temps, de 15 à 1500 chevaux; des moteurs à essence ou Diesel convertibles à quatre temps, de 30 à 1200 chevaux; et, enfin, des moteurs Diesel à quatre temps, de 75 à 1200 chevaux.

Au cours des quatre dernières années, la série entière des moteurs Diesel Cooper-Bessemer a été modernisée. Les organes essentiels ont été de nouveau renforcés. Par l'emploi judicieux de matériaux modernes, les poids des diverses pièces ont été reduits. Les organes qui travaillent ont été rendus plus accessibles. Le nouveau système breveté d'injection à décharge atmosphérique, exclusif à Cooper-Bessemer, marque à lui seul un bond marqué en avant dans le perfectionnement du moteur Diesel. Les moteurs Diesel de Cooper-Bessemer détiennent des records remarquables de rendement en service dans les raffineries, sur les canalisations pétrolières, dans l'entraînement des générateurs électriques, sur l'appareillage de forage Diesel-électrique, dans l'entraînement des pompes à eau, et dans le pompage sans balancier.

Des agents régionaux sont à portée dans la presque totalité des champs pétrolifères du monde. Les premières demandes de renseignements doivent être adressées au siège social à Mt. Vernon, Ohio, U. S. A.

(Ci-dessus, au centre) La péniche à moteur "Energy" de la Texas Company a foré quatorze puits rotatifs au moyen des groupes électriques Diesel de Cooper-Bessemer. Deux moteurs Diesel FP-6.242 chevaux (514 t/m) actionnent deux générateurs de 219 K.V.A. Cinq barils d'huile combustible suffiront à faire fonctionner ces deux moteurs pendant 24 heures, soit en service de pompage de boues, soit de forage.

(Ci-dessus, à gauche) Diesel Cooper-Bessemer de type GA. Un moteur de pompage à la fois simple, économique et sans défaillance, étudié spécialement pour les champs de pétrole. A deux temps, offert à un ou deux cylindres, régime normal de 30 à 150 chevaux. Converti instantanément pour fonctionner à l'essence.

(Ci-dessus, à droite) Le nouveau type 12—fruit de trois ans d'efforts visant à produire un groupe compresseur supérieur à deux temps et injection d'essence. Se distingue par une plus grande accessibilité, une plus grande capacité de surcharge, et une plus grande économie moyenne d'exploitation que tout autre groupe compresseur de grandeur similaire. Il est offert soit comme groupe à cylindre unique d'une puissance de 115 chevaux, soit comme groupe à cylindres jumelés de 230 chevaux.

THE COOPER-BESSEMER CORPORATION, MT. VERNON, OHIO, U. S. A.

L. W. Rogers, 6 Finsbury Square, London, E. C. 2.

Representatives in Nearly All the World's Oil Fields.

Tampico Warehouse

Senor E. O. Chapa, Union Sales Representative in Mexico

Hausteca Petroleum Company's Chijol 124, Ebano Field, Mexico

WIRE LINES BUILT FOR

UNION Wire Lines stand out as distinctive, in the Oil Industry, because they are manufactured in the Mid-Continent, world's greatest oil area, by oil men. The Oil Industry needed extra-hardy, extra-reliable wire lines. UNION engineers studied oil field conditions and produced the needed lines.

ROTARY DRILLING LINES are right lay in 6x19 Flexible Seale (Fig. 1), 6x19 Warrington (Fig. 2), and in some special constructions. UNION has standardized on 6x19 Flexible Seale with either Hemp or Independent Wire Rope Center (in 1⅛" diameter and larger). Sizes run from ¾" diameter up. Materials are usually Plow Steel or Improved Plow.

CABLE TOOL DRILLING LINES. The line in most general use is 6x19 Warrington (Fig. 2). In the Mid-Continent and Gulf Coast and in foreign fields, these lines are ordered right lay. In the Eastern, Mountain and California fields they are usually left lay. In the Eastern fields 6x7, left lay, (Fig. 6) is also used. Materials are usually Cast Steel or Mild Plow.

TUBING AND SUCKER-ROD LINES. The line in general use is 6x31 left lay, Hemp Center, (Fig. 3). ½" to ⅞" diameter. 6x19 Warrington (Fig. 2), 6x19 Filler Wire (Fig. 4), and 18x7 Non-Rotating (Fig. 5), are sometimes used. Tubing Lines are usually one size larger than Sucker-Rod Lines. Materials are Cast Steel, Plow or Improved Plow.

SAND LINES are 6x7 right lay (Fig. 6). Sizes ¼" to ¾". Materials Cast Steel or Mild Plow.

CASING LINES. Standard for cable tool is 6x19 Warrington right lay (Fig. 2), in Cast Steel, Mild Plow, Plow or Improved Plow. Sometimes Rotary and Cable Tool drilling lines are used as Casing Lines.

CLEANING-OUT LINES are usually one size smaller than drilling lines specified for the location.

SWABBING LINES are also of similar lay and construction to drilling lines.

PUMPING LINES are usually 6x7 left lay.

REFINING. Cracking Lines are one of the 6x19 types, right lay, with all-steel wire rope center.

UNION publishes a valuable 232-page Wire Rope Handbook, pocket-size. A copy will be gladly sent you.

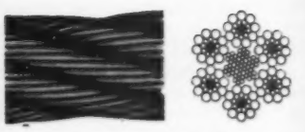


Fig. 1—6x19 Flexible Seale, with I. W. R. C.

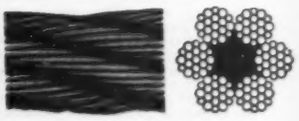


Fig. 2—6x19 Warrington Hemp Center

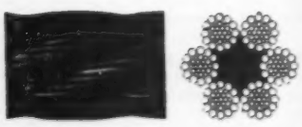


Fig. 3—6x31, Hemp Center

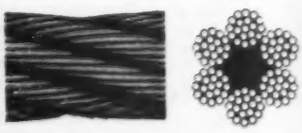


Fig. 4—6x19 Filler Wire Hemp Center

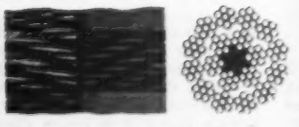


Fig. 5—18x7 Non-Rotating

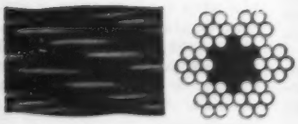


Fig. 6—6x7, Hemp Center

Стальные проволочные канаты, изготовленные для обслуживания нефтяной индустрии.

Стальные проволочные канаты UNION выделяются в нефтяной индустрии по своему качеству, так как они изготовляются в Средних Штатах, являющихся самой большой продуктивной зоной в мире, под руководством персонала, знающего нефтяное дело. Нефтяная индустрия требует экстра-прочные и экстра-надежные стальные канаты. Инженеры фирмы UNION изучили условия работ на нефтяных промыслах и создали стальные канаты требуемого качества. Стальные канаты UNION завоевали себе широкую и все время растущую репутацию на местных и заграничных промыслах.

СТАЛЬНОЙ КАНАТ ДЛЯ ВРАЩАТЕЛЬНОГО БУРЕНИЯ имеет правый завиток и состоит из 6-ти гибких секций по 19 проволок в каждой (фиг. 1), или 6 x 19 секций типа Warrington (фиг. 2), либо в некоторых случаях имеет специальную конструкцию. Стандартным канатом UNION является канат из 6 x 19 гибких секций (диаметром в 1¼" и большим) с сердцевиной из пеньки или из независимого стального проволочного каната. Размер канатов начинается от ¾" в диаметре и выше. Обычным материалом служит плуговая сталь или улучшенная плуговая сталь.

СТАЛЬНЫЕ КАНАТЫ ДЛЯ КАНАТНОГО БУРЕНИЯ. Для этой цели обычно применяется канат 6 x 19 Warrington с сердцевиной из пеньки (фиг. 2). В средних штатах и у Мексиканского залива, а также на заграничных промыслах применяются канаты с правым завитком. На Восточных, Горных и Калифорнийских промыслах применяют канаты с левым завитком. Диаметры обычно варьируют от ⅝" до 1". На Восточных промыслах также применяются канаты 6 x 7 (фиг. 6), имеющие левый завиток. Материалом обычно служит литая сталь или мягкая плуговая сталь.

СТАЛЬНЫЕ КАНАТЫ ДЛЯ НАСОСНЫХ ТРУБ И НАСОСНЫХ ШТАНГ. Для этой работы обычно применяют стальной канат 6 x 31 с левым завитком и сердцевиной из пеньки (фиг. 3), диаметром от ½" до ⅞", или 6 x 19 Warrington (фиг. 2), либо канат типа Filler 6 x 19 (фиг. 4), а иногда, также 18 x 7 нескручивающегося типа (фиг. 5). Стальные канаты для насосных труб обычно на один номер толще, чем канаты для насосных штанг. Материалом служит литая сталь, плуговая сталь или улучшенная плуговая сталь.

СТАЛЬНЫЕ КАНАТЫ ДЛЯ ЧИСТИЛЬНЫХ БАРАБАНОВ. Для этой работы применяются канаты 6 x 7 с правым завитком (фиг. 6) диаметром от ¼" до ¾". Материалом служит литая сталь или мягкая плуговая сталь.

СТАЛЬНЫЕ ТАЛЕВЫЕ КАНАТЫ. Стандартным стальным канатом для канатного бурения служит канат 6 x 19 Warrington из литой стали с правым завитком (фиг. 2). Эти канаты могут быть заказаны из мягкой плуговой стали, плуговой стали или улучшенной плуговой стали. Иногда стальные канаты для вращательного и для канатного бурения применяются как талевые канаты.

СТАЛЬНЫЕ КАНАТЫ ДЛЯ ЧИСТКИ. Эти канаты обычно одним номером меньше, чем бурильные канаты, употребляемые в той-же скважине.

СТАЛЬНЫЕ КАНАТЫ ДЛЯ СВАБИРОВАНИЯ. Эти канаты также имеют меньше завитков и более слабую конструкцию, чем бурильные канаты.

СТАЛЬНЫЕ КАНАТЫ ДЛЯ ОТКАЧКИ ОБЫЧНО ПРИМЕНЯЮТСЯ 6 x 7 с левым завитком.

СТАЛЬНЫЕ КАНАТЫ ДЛЯ НЕФТЕПЕРЕГОННЫХ ЗАВОДОВ. На крекинг установках применяют стальные канаты одного и того-же размера 6 x 19 с правым завитком и с сердцевиной из стального каната. Длина этих канатов варьирует, но они обычно снабжены коушами, расплющенными по обоим концам каната.

Фирма UNION издает ценный карманный справочник по стальным проволочным канатам в 232 страницы. Мы с удовольствием вышлем Вам экземпляр этого справочника.

JARECKI MFG. CO.

Distributors: Mid-Continent, New Mexico and Eastern Oil Fields

Warehouse: Monohans, Texas

UNION WIRE ROPE

Executive and Sales Offices: 601 Beacon Life Bldg., Tulsa, Oklahoma

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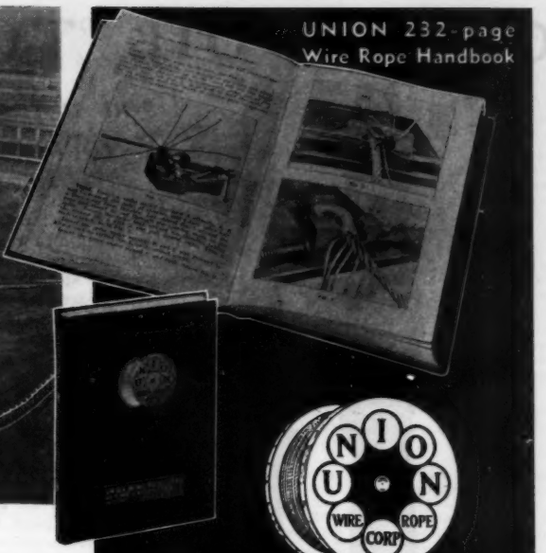
UNION WIRE LINES

The ULTIMATE LOW COST WIRE ROPE

Plant of the Union Wire Rope Corporation, Kansas City, Missouri, U.S.A.



OIL INDUSTRY SERVICE

Cables Metálicos Para La Industria Petrolera

Los cables metálicos UNION WIRE LINES son los más sobresalientes en la industria del petróleo porque se fabrican al centro del continente, la región más productiva de petróleo del mundo, por una compañía especialista en el ramo. La industria petrolera necesitaba cables metálicos de extraordinaria firmeza, resistencia y duración. Los ingenieros de la UNION estudiaron las condiciones del campo petrolífero y construyeron los cables que se necesitaban. Los cables metálicos UNION WIRE LINES están gozando de creciente popularidad en los campos petrolíferos nacionales y del extranjero.

CABLES PARA PERFORACIÓN ROTATORIA se ofrecen con trama a la derecha en tipos flexibles de 6 x 19 Seale (Fig. 1) y 6 x 19 Warrington (Fig. 2) y en otras construcciones especiales. La UNION se ha especializado en el flexible Seale de 6 x 19 con centro de cáñamo o independiente de cuerda de alambre (en diámetros de 1¼" y mayores). Los tamaños son de ¾" y más. Los materiales son ordinariamente acero de arado o acero especial de arado.

CABLES PARA HERRAMIENTA PERFORADORA. El cable de mayor uso es el tipo Warrington de 6 x 19 con centro de cáñamo (Fig. 2). En la región central y en la costa del golfo del país, lo mismo que en muchos campos petrolíferos del extranjero, estos cables se piden con trama a la derecha. En las regiones del este, sierras y campos de California, se piden con trama a la izquierda. Los diámetros se comprenden generalmente entre ¾" x 1". En los campos del éste se emplea también el de construcción de 6 x 7 (Fig. 6) con trama a la izquierda. Los materiales son ordinariamente acero fundido o acero regular de arado.

CABLES PARA TUBERÍA Y VASTAGO DE ASPIRADOR. El cable de mayor uso es el de 6 x 31 de trama a la izquierda, con centro de cáñamo, (Fig. 3) en diámetro de ½" a ⅞". El de 6 x 19 Warrington (Fig. 2), el 6 x 19 de tipo llenador (Fig. 4) y el 18 x 7 de tipo no giratorio (Fig. 5) se emplean también a veces. Los cables para tubería son generalmente un tamaño más grande que los cables para vástagos de aspiración. Los materiales son acero fundido, acero de arado o acero especial de arado.

CABLES PARA ARENA. Son de 6 x 7 de trama a la derecha (Fig. 6). Tamaños de ¼" a ¾". Materiales: acero fundido o acero regular de arado.

CABLES PARA REVESTIMIENTOS. El normal para herramienta de cable es el de 6 x 19 Warrington de acero fundido con trama a la derecha (Fig. 2). Estos cables se hacen de acero regular de arado, acero de arado o acero especial de arado. A veces se emplean los cables de perforación rotatoria o los de herramienta perforadora, como cables para revestimientos.

CABLES DE EXTRACCIÓN. Generalmente son un tamaño menor que el cable de perforación empleado en la explotación.

CABLES DE LIMPIEZA O FROTACIÓN. Son también similares en trama y construcción a los cables de perforación.

CABLES PARA BOMBA. Son generalmente de 6 x 7 con trama a la izquierda.

REFINERÍA. Los cables para servicios en plantas de destilación completa por el procedimiento "cracking" son invariablemente los de tipo 6 x 19 con trama a la derecha, con centro de alambres de acero. Estos cables varían en longitud, pero generalmente tienen en cada extremo un firme dado ranurado para la conexión segura.

La UNIÓN publica un valioso Manual de Cables Metálicos de 232 páginas, formato de tolsillo, que será enviado gustosamente a quien lo pida.

Câbles Métalliques Construits Pour L'Industrie Du Pétrole

Les câbles métalliques UNION se distinguent partout dans l'industrie du pétrole parce qu'ils sont fabriqués dans la région centrale américaine, parmi les plus productrices de pétrole du monde, et cela par des experts du pétrole. L'industrie du pétrole avait besoin de câbles métalliques extra-solides, sans la moindre défaillance en service. Les ingénieurs UNION ont étudié les conditions des champs pétrolifères et ont créé les câbles y répondant. Les câbles UNION font l'objet d'une demande vaste, sans cesse croissante dans les chantiers étrangers qu'aux Etats-Unis.

CABLES DE FORAGE ROTATIF. Ils sont à commettage à droite en Seale souple de 6x19 (Fig. 1), Warrington 6x19 (Fig. 2), et en quelques structures spéciales. UNION a standardisé sur Seale souple de 6x19 avec soit centre en chanvre, soit centre indépendent en câble de fil métallique (en diamètre de 1⅛ pouce et au-dessus). Grandeurs à partir de ¾ de pouce de diamètre. Il est généralement employé de l'acier de charrue ou de l'acier super de charrue.

CABLES DE FORAGE D'OUTILS A CABLE. Le câble le plus généralement employé est le Warrington de 6x19 avec noyau de chanvre (Fig. 2). Au centre des Etats-Unis et sur le Golfe du Mexique, ainsi que sur des champs étrangers, ces câbles sont commandés avec commettage à droite. Sur les chantiers de l'Est, de la section montagneuse, et de Californie, on les demande avec commettage à gauche. Les diamètres vont habituellement de ¾ à 1 pouce. Sur les champs de l'Est, la structure 6x7 (Fig. 6) s'emploit aussi et est commandée avec commettage à gauche. Ils sont a'ordinaire en acier coulé ou acier coulé ou acer doux de charrue.

CABLES DE TUBAGE ET DE TIGE D'ASPIRATEUR. ...e câble le plus couramment employé est celui de 6x31 avec commettage à gauche, noyau de chanvre, (Fig. 3), en diamètre allant de ½ à ⅞ de pouce. On emploie quelquefois aussi le Warrington de 6x19 (Fig. 2), le type à noyau de fil de 6x19 (Fig. 4), et le type non rotatif de 18x7 (Fig. 5). Les câbles de tubage sont généralement une taille plus grande que les câbles de tige d'aspirateur. Ils sont fabriqués en acier coulé, en acier de charrue ou en acier super de charrue.

CABLES DE SABLE. Ils sont prévus de 6x7 avec commettage à droite (Fig. 6). Tailles de ¼ à ¾ pouces. Faits en acier coulé ou en acier doux de charrue.

CABLES DE REVÊTEMENTS. Standard pour outil de câble est le Warrington de 6x19 en acier coulé avec commettage a droite (Fig. 2). Ces câbles peuvent se commander en acier de charrue, acier doux de charrue, ou acier super de charrue. Quelquefois les câbles de forage rotatif et d'outils à câble sont employés comme câbles de revêtements.

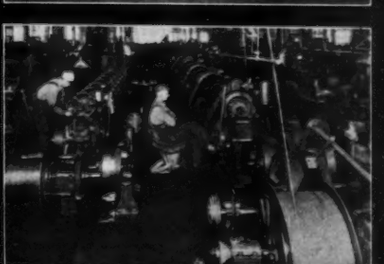
CABLES DE NETTOYAGE. Ils sont généralement d'une taille en-dessous des câbles de forage spécifiés pour l'endroit.

CABLES DE TORCHONNAGE. Ils sont de commetage et structure analogues à ceux des Câbles de forage.

CABLES DE POMPAGE. Ils sont habituellement de 6x7 avec commettage à gauche.

RAFFINEMENT. Les câbles employés au cracking sont invariablement un des types 6x19, avec commettage à droite, avec centre en câble de fil tout-acier. Ces câbles ont une résistance variable, mais ils sont habituellement munis d'une forte cosse à épissure à chaque extrémité.

UNION publie une brochure très documentée de 232 pages sur les câbles métalliques. Un exemplaire vous en sera envoyé avec plaisir.



Views in Plant of Union Wire Rope Corporation

CORPORATION

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Exclusive Export Agents:

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Branch: Portland, Oregon

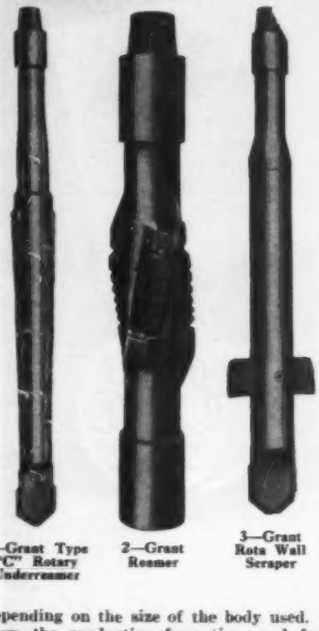
MARION MACHINE FOUNDRY & SUPPLY CO.

Rocky Mountain Fields, except New Mexico

UNION WIRE LINES

The "ULTIMATE LOW COST WIRE ROPE"

GRANT OIL TOOLS



1—Grant Type "C" Rotary Underreamer | 2—Grant Reamer | 3—Grant Rota Wall Scraper

Used where performance counts

1. The Grant Type "C" Rotary Underreamer is used throughout the world to underream in all formations. The cutters may be expanded either by hydraulic pressure or spring action, depending on the type of service required. The cutters collapse into the body when coming out of the hole. This underreamer is strongly constructed in all sizes, consists of a minimum number of parts, and is positive and dependable in its action.

2. The angle at which the cutters of the Grant Reamer are set gives them a combined shearing and chipping action that assures efficient cutting and maximum footage in all types of formation. The scientific design makes the rotation of the cutters positive, thus placing the wear on the cutter pins, which are economically replaced, and avoiding flat cutters. Made in all sizes.

3. The blades of this Grant 2-Blade Hydraulic Expansion Wall Scraper expand over a range of from 4 to 29 inches, depending on the size of the body used. It is invaluable for removing encrusted mud from the productive formation, and for enlarging the hole in formations successfully drilled with a drag bit and soft enough to allow the blades to cut their way to the expanded position.

See 1936 Composite Catalog or write for information and prices.

1. Расширитель Grant типа "С" для вращательного бурения употребляется по всему земному шару для работ в любых грунтах. Резцы расширяются либо гидравлическим давлением, либо пружиной, в зависимости от характера работ. При извлечении расширителя из скважины резцы опускаются и входят в корпус расширителя. Этот инструмент сконструирован чрезвычайно прочно; он состоит из минимального количества частей, и работа им отличается верностью и надежностью.

2. Резцы Римера Grant расположены под таким углом, при котором получается их комбинированное срезывающее и откалывающее действие, чем обеспечивается эффективное удаление грунтов и максимальная проходка в любых породах. Научно разработанная конструкция обеспечивает вращение резцов, благодаря чему, износу подвержены только валики резцов, которые можно экономно сменять. Кроме того, резцы не получают плоского износа. Размеры Grant изготовляются всех размеров.

3. Лезвия Бокового Скрейпера Grant с 2-мя лезвиями и Гидравлическим Расширением раздвигаются от 4 дюймов до 29 дюймов, в зависимости от размера применяемого корпуса. Они незаменимы для удаления грязи, прилипшей к стенкам скважины и закрывающей продуктивные грунты, а также для увеличения диаметра скважины в формациях, пробуренных обыкновенным долотом, но достаточно мягких для того, чтобы лезвия скрейпера могли прорезать свой путь и расшириться.

Обращайтесь к Сборному Каталогу 1936 года или к нам за дополнительными информациями и ценами.

1. El escariador giratorio Grant, tipo "C", se emplea en todas partes del mundo para la escariación en toda clase de formación. Los cortadores pueden extenderse por presión hidráulica o por acción de resorte, según el tipo de servicio que se indique. Los cortadores se repliegan en el cuerpo al salir del agujero. Este escariador se construye firmemente en todos los tamaños corrientes. Consta de un mínimo de piezas y es positivo y seguro en acción.

2. El ángulo al cual se ajustan los cortadores del escariador Grant imparte a la herramienta una acción combinada de corte y picadura, lo que asegura una escariación eficaz y de gran rendimiento en todo tipo de formación. Debido a su proyecto científico, la rotación de los cortadores es positiva, lo que transfiere el desgaste a los pasadores de los cortadores, los cuales pueden reponerse económicamente. Los cortadores no se aplanan. Se ofrecen en numerosos tamaños.

3. Los cortadores de este raspador Grant de 2 cortadores de tipo hidráulico de extensión, se extienden dentro de una escala de 4 a 29 pulgadas, según el tamaño del cuerpo que se emplee. Es muy necesario para raspar el barro incrustado de formaciones productivas y para agrandar el agujero en formaciones bien perforadas con barrena, que por su blandura permita el movimiento de los cortadores a su posición saliente o extendida.

Pídanos información detallada y precios.

1. Le sous-alésoir rotatif Grant de type "C" est d'un emploi courant dans le monde entier pour sous-aléser dans tout genre de gisements. Les fraises peuvent en être dilatées soit par pression hydraulique, soit sous l'action de ressorts, selon le type de service demandé. Les fraises se rabattent dans le corps de l'instrument à sa sortie du trou de forage. Ce sous-alésoir est de construction robuste, prévu pour toutes les tailles, comporte un minimum de pièces, et a une action positive et sans défaillance.

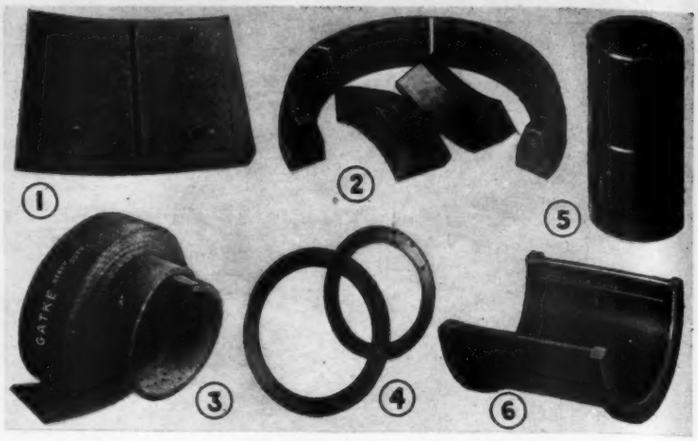
2. L'angle sous lequel les fraises de l'alésoir Grant sont ajustées leur assure une action combinée de cisaillement et de burinage, ce qui assure une pénétration efficace et un parcours maximum dans tous les genres de formations géologiques. Sa construction scientifique rend la rotation des fraises positive, ce qui reporte l'usure sur les forets de fraises, lesquels se remplacent à peu de frais, et évite les fraises plates. Il est fait de toutes les grandeurs.

3. Les lames de ce râcleur de parois Grant à 2 lames et expansion hydraulique, peuvent se dilater sur une amplitude allant de 4 pouces à 29 pouces, selon les dimensions du corps d'instrument employé. Ce râcleur est des plus utiles pour enlever la boue incrustée du gisement en exploitation, et pour élargir le puits de forage dans les formations forées avec succès au moyen d'un trépan à traction et assez molles pour permettre les lames de pénétrer jusqu'à leur position de dilatation.

Consultez votre catalogue général de 1936 ou demandez-nous par lettre complète documentation et prix.

GRANT OIL TOOL COMPANY

2042-44 East Vernon Avenue,
LOS ANGELES, CALIFORNIA, U.S.A.



GATKE OIL FIELD PRODUCTS

Complete understanding of operators' requirements, endless development and painstaking care in manufacture has built the enviable reputation enjoyed by Gatke products.

1. Gatke No-Fade Brake Block furnished in Sets. Holding power remains constant regardless of brake flange temperatures. No smoke or odor. Affords smooth, creeping feed under all conditions.

2. Gatke Moulded Friction Blocks for hoists, drag lines, power shovels.

3. Gatke Woven Brake Lining. Gatke also makes Hydraulic Compressed Brake Lining and Moulded Brake Lining in Flexible Rolls.

4. Moulded Clutch Facings. Made in all shapes and sizes for Oil Field equipment.

5. & 6. Gatke Non-Metallic Moulded Bearings. Outwear ordinary bearings 3 to 5 times on hardest services. Reduce journal wear. Cannot score journals even when lubrication fails.

Write or cable for catalogs and quotations.

Полное понимание оперативных требований, непрерывное усовершенствование и добросовестное отношение к производству, — все это создало высокую репутацию изделиям фирмы Gatke.

1. Тормазные колодки Gatke марки No-Fade поставляются готовыми комплектами. Их тормазящая сила остается постоянной, независимо от температуры тормазного фланца. Дым и запах отсутствует. Ими достигается при любых условиях плавное и надежное торможение.

2. Фрикционные формованные колодки Gatke применяются для лебедок, скрейперов и силовых лопат.

3. Тканные тормазные ленты Gatke. Фирма Gatke также изготовляет гидравлически прессованные тормазные ленты и формованные тормазные ленты в форме гибких свертков.

4. Формованные облицовки для фрикционных муфт изготовляются всех форм и размеров применяемых на нефтяных промыслах.

5 и 6. Формованные не-металлические подшипники Gatke. При самых тяжелых условиях работы они выдерживают от 3 до 5 раз дольше, чем обыкновенные подшипники. Ими уменьшается износ шеек валов, которые не могут быть поцарапаны даже при отсутствии смазки.

Обращайтесь по почте или по телеграфу за каталогами и ценами.

La envidiable reputación de que gozan los productos Gatke se debe a su profundo conocimiento de los requisitos de los petroleros, incesante perfeccionamiento y precisa construcción de sus artículos.

1. Bloque de freno Gatke No-Fade, suministrado en juegos. Su fuerza de sujeción permanece constante sin ser afectada por la temperatura del reborde del freno. No hay humo ni olor. Permite una alimentación suave y gradual bajo todas las condiciones del trabajo.

2. Bloques de rozamiento moldeados Gatke para malacates o grúas, líneas de tracción y palas mecánicas.

3. Forro tejido Gatke para frenos. La Gatke fabrica también forro de freno comprimido hidráulicamente y forro de freno moldeado en rollos flexibles.

4. Revestimientos de embrague moldeados. En toda forma y tamaño para equipos de campos petrolíferos.

5 y 6. Cojinetes moldeados no metálicos Gatke. Duran de 3 a 5 veces más que los cojinetes ordinarios sujetos al más severo servicio. Reducen el desgaste del soporte. No pueden rayar, aun cuando falla la lubricación de la superficie de contacto.

Por carta o por telegrama pídanos catálogos y precios.

Une connaissance complète des besoins des exploiteurs de champs pétroliers, des recherches constantes et des soins méticuleux dans la fabrication ont permis aux produits Gatke d'acquérir une réputation enviable.

1. Le sabot de frein "No-Fade" Gatke fourni en jeux. Le pouvoir de freinage reste constant quelles que soient les températures de flasques de frein. Ni fumée, ni odeur. Il assure une avance régulière et progressive dans toutes les conditions.

2. Les sabots moulés à frottement Gatke pour palans, câbles de traction et pelles mécaniques.

3. La garniture de frein tissée Gatke. Gatke fabrique aussi la garniture de frein compressée hydraulique et la garniture de frein moulée, fournies en rouleaux souples.

4. Garnitures d'embrayage moulées. Fabriquées en toutes formes et grandeurs pour l'équipement des champs de pétrole.

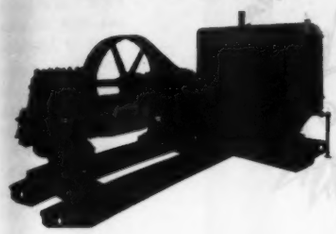
5. & 6. Coussinets moulés non métalliques Gatke. Durent de 3 à 5 fois plus longtemps que les coussinets ordinaires en services les plus durs. Réduisant l'usure des tourillons. Ne peuvent rayer les tourillons, et cela même lorsque la lubrification vient à cesser.

Demandez-nous, par lettre ou câble, catalogues et cotations.

GATKE CORPORATION

228 N. LA SALLE ST., CHICAGO, U.S.A.

WHEATLEY FEATURES OIL FIELD PUMPING UNITS



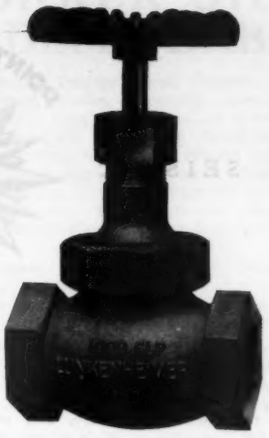
Wheatley Brothers specialize in oil industry equipment, including pumps, portable pumps, gate and check valves, and combinations, strainers, tapping machines, hoisting tripods, saddle clamps and welding clamps. Of special importance are Wheatley Heavy Duty Power Pumps, "Champion" portable units the "Challenger" pumping unit, and combination check and gate valves. Wheatley pumps are widely used by the oil industry, due to low cost, great capacity, fewer operating parts and easy portability. Wheatley builds pumping units for all purposes; for nominal or high pressures, with weatherproof housing requiring no sheds or other protection. See illustration of Wheatley units in this issue. Catalog on request.

Фирма Wheatley Brothers специализируется по изготовлению оборудования для нефтяной индустрии, включая насосы, переносные насосы, задвижки и приемные клапаны, комбинированные соединения, стрейнеры, винторезные станки, треноги с под'емными блоками, хомуты с седлами и приварные хомуты. Особенными достоинствами отличаются насосы Wheatley для тяжелых условий работ, переносные установки "Champion", насосные установки "Challenger" и комбинированные задвижки и приемные клапаны. Насосы Wheatley широко применяются в нефтяной индустрии, ввиду их низкой стоимости, большой производительности, небольшому количеству рабочих частей и легкости переноски. Фирма Wheatley строит насосные установки для обслуживания всех требований, как для нормальных, так и для высоких давлений. Предохранительные кожухи защищают оборудование от влияния погоды, так что нет необходимости строить специальные навесы и другие приспособления для защиты. Иллюстрации установок Wheatley помещены в этом номере журнала. Каталог высылается по требованию.

La Wheatley Brothers se dedica con especialidad a equipos para la industria del petróleo, entre los cuales se incluyen bombas fijas, bombas portátiles, válvulas de compuerta y de retención, válvulas de combinación, coladores, máquinas perforadoras, trípodes de izar, abrazaderas de soporte y abrazaderas de soldar. De especial importancia son las bombas mecámcas de servicio pesado Wheatley, los grupos portátiles "Champion", el grupo de bomba "Challenger" y las válvulas de combinación de retención y compuerta. Las bombas Wheatley se emplean extensamente en la industria petrolera, a causa de su económico costo, gran capacidad, menor número de piezas móviles y facilidad de transporte. La fábrica Wheatley construye grupos de bombas para todo servicio, para presiones nominales y grandes presiones, con cubiertas a prueba de intemperie, que hacen innecesario todo otro tipo de abrigo o protección. Vea los grabados de grupos Wheatley en el presente número. Catxlogo a solicitud.

Wheatley Brothers sont spécialisés dans la fabrication du matériel pour l'industrie pétrolière, entre autres pompes, pompes portatives, soupapes à vanne tt de retenue, et combinaisons, crépines, machines à tarauder, trépieds de palonnage, attaches de selles et serre-joints de soudure. D'une importance toute spéciale sont les pompes à moteur Wheatley de service dur, les groupes portatifs "Champion", le groupe de pompage "Challenger", et les soupapes combinaison vanne et arrêt. Les pompes Wheatley sont d'un emploi très répandu dans l'industrie du pétrole, à cause de leur bon marché, de leur grande capacité, du petit nombre de pièces qui travaillent et parce qu'elles sont facilement transportables. Wheatley fabrique des groupes de pompage pour tout emploi; pour des pressions faibles et des pressions très fortes, avec un couvrepompe à l'épreuve de l'eau qui leur permet de se passer de hangar ou de tout autre abri. Voir l'illustration des groupes Wheatley dans le présent numéro. Catalogue sur demande.

WHEATLEY BROS.
Pump and Valve Mfgrs.
TULSA, OKLA., U.S.A.



Lunkenheimer 350 lb. SP Valves
1,000 lb. oil, gas and liquid pressure

The Lunkenheimer Company has developed a new line of bronze valves for use in connection with deep well drilling operations, and for high pressure gas, oil and hydraulic service. The valves are made in globe, gate, lift check and swing check patterns, and are suitable for 350 lb. steam pressure at 550°F. and 1,000 lb. gas-liquid pressure at 150°F.

Steel valves for similar services are made in globe, angle, gate and swing check patterns, rated at 350 lb. S.P. 580°F. The gas-liquid pressure is 500 pounds at 150°F.

These new valves are fully illustrated and described in Circular No. 598, a copy of which will be sent on request.

Фирма Lunkenheimer Company выпустила новый тип бронзовых задвижек, приспособленных для установок при производстве работ по глубокому бурению, для газовых линий с высоким давлением, для нефтяных трубопроводов и гидравлических установок. Фирма изготовляет вентили, задвижки, приемные клапаны под'емного и поворотного типов, приспособленных для давления пара в 350 англо-фунтов при температуре в 550° по Фаренгейту, или для давлений газа и жидкости в 1000 англо-фунтов при температуре в 150° по Фаренгейту.

Для аналогичных установок также изготовляются стальные вентили, задвижки, угловые вентили, под'емные и поворотные приемные клапаны, пригодные для давления пара в 350 англо-фунтов при температуре в 580° по Фаренгейту, или для давлений газа и жидкости в 500 англо-фунтов при температуре в 150° по Фаренгейту.

Эти новые задвижки подробно описаны и иллюстрированы в циркуляре 598, копия какового высылается по требованию.

La Lunkenheimer Company ha perfeccionado un nuevo surtido de válvulas de bronce para uso en conexión con la perforación de pozos profundos y para servicio de gas, petróleo, hidráulico y de alta presión. Las válvulas de hacen en tipos esféricos, de compuerta, de retención de levantamiento, de retención giratoria y de otros modelos corrientes, adecuados a presiones de vapor de 350 libras a 550 grados a 1.000 libras de presión liquida gaseosa a 150 grados F.

Se hacen también válvulas de acero, para similares servicios, en tipos esféricos, de ángulo, de compuerta y de retención giratoria, para presiones de vapor de 350 libras a 580 grados F. La presión liquida gaseosa es de 500 libras a 150 grados F.

Estas nuevas válvulas se describen e ilustran en nuestra circular No. 598, ejemplar de la cual enviaremos a quien lo pida.

La Lunkenheimer Company a perfectionné une nouvelle série de valves en bronze pour emploi dans les opérations de forages de puits profonds, ainsi que pour les services de haute pression, hydraulique, de pétrole ou à gaz. Ces valves sont offertes en modèles à globe, vanne, d'arrêt à course rectiligne et d'arrêt à course oscillante. Elles sont prévues pour pression de vapeur de 350 lbs. à 550° F. et une pression de liquide-gaz de 1.000 lbs. à 150° F.

Il est offert aussi des valves en acier pour services similaires en modèles à globe, angle, vanne, et arrêt à course oscillante, pour pressions de vapeur de 350 lbs. à 580° F. La pression liquide-gaz prévue est de 500 lbs. à 150° F.

Ces nouvelles valves sont illustrées et décrites en détail dans la circulaire No. 598, dont un exemplaire vous sera envoyé sur demande.

THE LUNKENHEIMER COMPANY
CINCINNATI, OHIO, U.S.A.

WILSON PORTABLE RIGS AND WINCHES

An Outstanding Achievement in Efficiency and Economy.

As a result of years of actual satisfactory performance in the field where speed, consistency, and economy are of paramount importance to getting a job done—Wilson Portable rigs and Winches have won world-wide popularity and demand! Unquestionably, the important feature of Wilson equipment which has brought about the most outstanding development in drilling rigs of all time is the patented Chain Drive Transmission which transmits 35 per cent more power from the motor to the point of action. It's unique simplicity and positive operation provides a dependable type of service which helps to effect greater speed, power, and economy than ever before possible.

Wilson equipment embodies several other unusual features which add materially to its established value. Among these are: The Dual Engine System with connecting drive (Patented in U.S.A.) which provides the power of two engines when needed, or in case one engine should fail the other can be used to drive both rotary table and pump or pull drill pipe; the friction and Jaw Clutch on drum final drive, which affords positive action, and smooth, easy performance in low and high speeds. Thus, shocks are practically eliminated and strain is greatly reduced, which results in longer wear and service of the equipment; the Cam Operated Brake, which is the Free Rolling Drum with no chain mis-alignment with Wilson Patented Jaw Clutch System; Large Capacity Timken Roller Bearings at all principal points; and heavy special alloy brake rings with fan type ribs securely riveted to cast steel drum ends.

Watch for a "Wilson" in use in your field! You'll marvel at its smooth, speedy and positive operation!

Переносные бурильные станки и лебедки Wilson завоевали популярность и требуются по всему миру, что является результатом их многолетнего и чрезвычайно успешного применения на нефтяных промыслах, где особенно важно закончить работу скоро, надежно и экономно. Неоспоримым достоинством оборудования Wilson, превосходящим все усовершенствования, сделанные до сего времени в бурильных станках, является патентованная цепная трансмиссионная передача, которая передает на 35% больше энергии мотора к рабочему валу. Ее исключительная простота и положительность создают надежность работы и дают возможность достигать больших скоростей, больших мощностей и большей экономии, чем это было возможно до настоящего времени.

Изделия Wilson имеют много других крупных достоинств, которые сильно увеличивают их ценность. Эти достоинства следующие: сопряженная система двух двигателей с соединяющимся приводом (патентовано в С.Ш.), которая дает возможность использовать, когда это надо, силу обоих двигателей, либо, в случае остановки одного из двигателей, дает возможность пользоваться другим двигателем для работы ротора и насоса, или для извлечения бурильных труб; фрикционная и челюстная соединительная муфта находится на последнем барабане, чем достигается верность, а также плавность и легкость работы при малых и больших скоростях. Благодаря этому толчки фактически отсутствуют и напряжения значительно уменьшены, в результате чего получается меньший износ и удлиняется срок службы механизмов; Тормаз, работающий от кулачка, представляет собою свободно-вращающийся барабан, без цепной передачи, снабженный патентованной челюстной фрикционной муфтой Wilson; все главные валы работают в тяжелых роликовых подшипниках Timken; тяжелые тормазные кольца из стали специального сплава с веерообразными ребрами надежно приклепаны по бокам стальных литых барабанов.

Наблюдайте за станками Wilson на Ваших нефтяных промыслах. Вы будете поражены плавностью, скоростью и надежностью их работы.

En virtud de muchos años de satisfactorio funcionamiento en campos petrolíferos, dónde la velocidad, la seguridad y la economía son de importancia fundamental para la lucrativa realización del trabajo, las instalaciones portátiles y montacargas Wilson se han granjeado reputación y demanda universal. Sin duda alguna, el rasgo más importante del equipo Wilson, que ha introducido el más resaltante progreso en instalaciones de perforación modernas, es la transmisión por cadena propulsora patentada, la cual transmite 35% más fuerza de motor al punto de aplicación. Su característica sencillez y positivo funcionamiento proveen un tipo de servicio, seguro, que propende a producir mayor velocidad, mayor fuerza y mayor economía que nunca.

El equipo Wilson comprende varios otros rasgos extraordinarios, que acentúan mucho más aún su establecida importancia. Entre estos rasgos se hallan: el sistema de motor doble, con transmisión interconectada, patentada en los Estados Unidos, que suministra la fuerza de dos motores, cuando se necesite. En caso de falla de un motor, el compañero continúa accionando la mesa rotatoria y bomba o moviendo el tubo de perforación. Otros rasgos son el embrague de rozamiento y mandíbula en la propulsión final del tambor, que permite un funcionamiento suave y gradual en velocidades moderadas y altas. De este modo, se evitan casi por completo los choques, reduciéndose la tensión, lo que resulta en mayor duración y mejor servicio del equipo; el freno accionado por excéntrica o leva, el cual es el tambor de rodadura libre sin desalineación de cadena con sistema de embrague de mandíbula Wilson patentado; cojinetes de rodillos Timken de gran capacidad en todas los puntos importantes, y anillos de freno grandes de especial aleación con nervadura de tipo de abanico firmemente remachadas en los extremos de acero fundido del tambor.

Estudie un equipo Wilson en acción en su campo petrolífero. Su funcionamiento rítmico, rápido y positivo le sorprenderá.

A la suite de nombreuses années de service extra-satisfaisant sur les chantiers où la vitesse, la régularité et l'économie sont de toute première importance dans l'exploitation—les appareillages portatifs et les treuils Wilson se sont acquis une renommée mondiale et partant une demande internationale! Il est partout reconnu que l'avantage dominant offert par l'équipement Wilson, qui a déterminé le progrès le plus décisif dans les appareillages de forage, de temps immomérial, c'est la transmission brevetée à chaine, qui transmet 35 pour cent de plus en puissance du moteur au point d'application. Sa simplicité unique et son fonctionnement positif assurent un service sans défaillance qui contribue à réaliser un accroissement décisif en vitesse, puissance et économie, irréalisable jusqu'à présent.

L'équipement Wilson présente plusieurs autres caractéristiques d'un intérêt tout spécial, qui ajoutent encore à sa réputation enviable. Citons entre autres: le système à moteurs jumelés avec transmission de liaison (brevetée aux Etats-Unis), qui permet de disposer de la puissance de deux moteurs quand on en a besoin, ou, dans le cas où l'un des deux moteurs vient à caler, on peut avoir recours à l'autre pour actionner la table rotative et la pompe, ou le tuyau de forage à traction; l'embrayage à mâchoires et frottement sur la commande finale à tambour, qui assure une action positive, ainsi qu'une marche facile et douce aux faibles et aux vives allures. Ainsi, les chocs se trouvent presque complètement éliminés et les efforts sont grandement réduits, ce qui se traduit par un usage et un service plus longs de la part de l'équipement; le frein à commande à came, qui est le tambour à roulement libre avec aucun désaxage de chaine grâce au système breveté Wilson d'embrayage à mâchoires; des coussinets à rouleaux Timken de grande capacité à tous les points essentiels; et, enfin, des colliers de freins robustes d'alliage spécial avec côtes du type à ailettes, solidement rivés aux extrémités des tambour en fonte.

Observez vous-même un "Wilson" en service sur votre chantier! Vous serez émerveillé par son fonctionnement à la fois doux, rapide et positif!

WILSON MANUFACTURING COMPANY
WICHITA FALLS, TEXAS, U.S.A.

L&N INSTRUMENTS FOR RELIABLE MEASUREMENTS

Temperature and other measurements in refining, in pipe-line transportation, in power plant and laboratory, are made reliably with time-tested Leeds & Northrup instruments which meet the exacting needs of the Petroleum Industry.

There is a choice of ruggedly built indicators, recorders and controllers which apply sound measuring principles and are simple, easy to operate, easy to install, requiring little maintenance. Micromax recorders give a permanent chart record of one or up to sixteen temperatures, and can be equipped to handle elaborate automatic controls. These Micromax instruments are supplied not only for temperature, but for liquid level, pressure, speed, percent CO_2, chemical concentration, etc., and are peculiarly adapted to applications where readings must be transmitted over long distances. In addition, there is a choice of manually-operated indicators for portable use and for permanent installation.

For research and testing, there is the L&N line of standards, galvanometers and dynamometers, bridges, potentiometers, and their accessories from which to choose instruments for a variety of measurements in laboratory, plant and field. For routine measurements there is often a specially designed test set, arranged for speed and convenience.

При перегонных процессах, на трубопроводах, силовых станциях и в лабораториях температурные и другие измерения получаются аккуратно и надежно при помощи инструментов Leeds & Northrup, которые отвечают точным требованиям нефтяной индустрии.

Фирма имеет большой выбор прочно построенных индикаторных, рекордирующих и контрольных инструментов, которые работают на правильных принципах, отличаются простотой конструкции, не сложны в смысле обращения с ними, легко устанавливаются и требуют мало обслуживания. Рекордирующие инструменты Micromax дают постоянный бланк с графической отметкой от одной до шестнадцати температур и могут быть приспособлены для автоматического контроля. Инструменты Micromax применяются не только для измерения и контроля температур, но и для уровней жидкостей, давлений, скоростей, процента CO_2, химических концентраций и проч. Они особенно пригодные для тех случаев, когда записи должны быть переданы на далекое расстояние. В дополнение к этим инструментам, также имеется большой выбор переносных и стационарных индикаторов, управляемых от руки.

Для изыскательных работ и испытаний фирма L & N имеет большой выбор стандартов, гальванометров и динамометров, мостиков, потенциометров и принадлежностей к ним, что дает возможность сделать правильный выбор инструментов для разнообразных измерений в лабораториях, на заводах и на полях. Для стандартных измерений часто может применяться комплект специально сконструированных испытательных инструментов, которыми достигается скорость и удобство в работе.

La temperatura y otras mediciones en la refinería, en el transporte por tubería, en la central de fuerza y en el laboratorio, resultan exactas con los instrumentos de establecida seguridad Leeds & Northrup, los cuales satisfacen los requisitos más exigentes de la industria del petróleo.

Hay un amplio surtido de indicadores, registros y reguladores de firme construcción, basados sobre racionales principios de medición, muy fáciles de instalar, muy sencillos en funcionamiento y que requieren muy poco servicio de conservación. Los registros Micromax dan un permanente registro diagramático de una a diez y seis temperaturas, pudiendo equiparse para el manejo de controles automáticos de gran precisión. Estos instrumentos Micromax se suministran no sólo para temperatura, sino también para nivel de líquido, presión, velocidad, porcentaje de CO_2, concentración química, etc., adaptándose idealmente a aplicaciones en que los resultados o acusaciones han de ser transmitidas a largas distancias. Además, hay elección a indicadores de funcionamiento manual, para uso portátil y para instalación permanente.

Para estudios y ensayos ofrecemos el surtido L&N de soportes, galvanómetros y dinamómetros, puentes, potenciómetros y sus accesorios, del cual pueden elegirse instrumentos para diversas mediciones en laboratorio, central de fuerza y campo de trabajo. Para mediciones corrientes hay generalmente un juego de ensayo proyectado especialmente para hacer el trabajo con rapidez y conveniencia.

Les mesures de température et autres sont faites avec un maximum de précision, au raffinement, au transport dans les canalisations, à la centrale d'énergie et au laboratoire, au moyen des instruments Leeds & Northrup, qui ont depuis longtemps fait leurs preuves comme répondant rigoureusement aux exigences de l'industrie du pétrole.

Il est offert un choix d'indicateurs, d'enregistreurs et de contrôleurs, de construction robuste, qui appliquent des principes rationnels de mesure et sont simples, faciles à employer, faciles à installer, et ne demandent que peu d'entretien. Les enregistreurs Micromax permettent d'établir un graphique permanent de température, pouvant aller jusqu'à seize températures, et peut être prévu pour adaptation de commandes automatiques très perfectionnées. Ces instruments Micromax sont fournis non seulement pour la mesure des températures, mais aussi pour les niveaux liquides, pressions, vitesses, pourcentages de CO^2, concentrations chimiques, etc., et sont particulièrement indiqués dans les cas où les lectures doivent être transmises à de grandes distances. En outre, il est offert une gamme d'indicateurs à commande manuelle pour emploi portatif et pour installation fixe.

Pour les recherches et les essais, il est offert la série L&N de standards, galvanomètres et dynamomètres, ponts de mesure, potentiomètres, ainsi que leurs accessoires, parmi lesquels on peut choisir les instruments que l'on désire, et qui sont prévus pour une variété de mesures en laboratoire, à la fabrique et sur le chantier. Pour les opérations de mesure les plus courantes, il est souvent prévu un jeu d'essai de construction spéciale, combinant à la fois rapidité et commodité de mesure.

LEEDS & NORTHRUP COMPANY
4959 Stenton Avenue, PHILADELPHIA, PA., U.S.A.

SEISMIC SURVEYS

During the past two years, 19 new oil fields have been discovered on structures which the Independent Exploration Company and its subsidiaries mapped with the reflection seismograph and recommended favorably to their clients before the discovery well was drilled. During this period nearly 100 non-productive test wells, drilled in areas previously mapped by our seismograph parties, have also proved the accuracy of our predictions. Our adverse recommendations in these cases have saved our clients several hundred thousand dollars. In effect, reflection seismograph surveys made before drilling have practically eliminated for our clients the hazard of drilling dry test holes.

Our success can be attributed largely to the many years of practical field experience enjoyed by our geophysicists, and to the instruments built exclusively for us by Rosaire and Kannenstine. The continuous research carried on in their laboratory assures our clients the use of seismographs unequalled in sensitivity and accuracy.

Through our subsidiary, the Pathfinder Prospecting Company, we offer the same service to petroleum prospectors in foreign lands. Please write for details. We shall appreciate the opportunity to substantiate our claims, and will gladly outline the application of the reflection seismograph to any particular problem in sub-surface geology which confronts you.

В продолжение последних двух лет было открыто 19 новых нефтяных полей, на основание сейсмографических работ, произведенных фирмой Independent Exploration Company, и связанных с нею субсидиарных фирм. Эти новые площади были с выгодными результатами рекомендованы клиентам еще до начала бурения пробных скважин. Втечение этого же периода было также пробурено почти 100 непродуктивных пробных скважин на площадях, ранее этого времени обследованных и отмеченных по нашим сейсмографическим работам, и они также доказали точность наших предсказаний. Наши предварительные рекомендации во всех этих случаях, спасли нашим клиентам сотни тысяч долларов. После предварительного исследования площадей отражающим сейсмографом, у наших клиентов отпадает риск получения сухих пробных скважин.

Наш успех об'ясняется главным образом многолетним практическим опытом, приобретенным нашими геофизиками в действительной работе на нефтеносных полях, а также инструментами, которые изготовляются специально для нас фирмой Rosaire and Kannenstine. Непрерывные изыскательные работы, которые производятся в их лаборатории, гарантируют нашим клиентам применение сейсмографов, несравнимых с никакими другими в смысле чувствительности и аккуратности их показаний.

Через посредство нашей субсидиарной компании The Pathfinder Prospecting Company, мы предлагаем те-же услуги фирмам, производящим пробное бурение в заграничных странах. Просим обращаться к нам за деталями. Мы с удовольствием воспользуемся случаем доказать на деле основательность наших заявлений и охотно раз'ясним применение отражающего сейсмографа для любых задач поверхностного обследования геологических залеганий, какие только могут встретиться у Вас.

Durante estos últimos dos años, 19 nuevos campos petrolíferos se han descubierto en yacimientos que la Independent Exploration Company y compañías subsidiarias exploraron y estudiaron con sismógrafo de reflexión, dándoles favorable recomendación a sus dueños antes de la perforación de los pozos. Durante este período, casi 100 pozos improductivos de ensayo, perforados en zonas previamente estudiadas con sismógrafo por nuestros ingenieros, han confirmado la exactitud de nuestras predicciones. Nuestros informes adversos, en estos casos, ahorraron a los dueños millares de dólares. En efecto, los estudios con sismógrafo de reflexión hechos antes de la perforación han casi eliminado del todo, en beneficio de los dueños, la pérdida de tiempo y dinero en perforar pozos secos de ensayo.

Nuestro éxito puede atribuirse, en gran medida, a los muchos años de experiencia práctica en campos petrolíferos de que gozan nuestros geoficistas y a los instrumentos que Rosaire y Kannenstine construyen exclusivamente para nosotros. El contínuo estudio llevado a cabo en sus laboratorios asegura a nuestros clientes el empleo de sismógrafos insuperables en sensitividad y exactitud.

Por medio de nuestra subsidiaria, la Pathfinder Prospecting Company, ofrecemos los mismos servicios a los exploradoras de petróleo en países extranjeros. Sírvase pedirnos información detallada. Apreciaremos mucho la oportunidad de verificar nuestras asceveraciones. Gustosamente indicaremos la applicación del sismógrafo de reflexión a cualquier problema particular en geología subterránea que se presente al interesado

Au cours de ces deux dernières années, 19 champs pétrolifères nouveaux ont été découverts sur des gisements que l'Independent Exploration Company et ses filiales ont déterminés au moyen du sismographe à réflexion et recommandés favorablement à leurs clients avant que le puite d'essai ne soit foré. Pendant cette période, près de 100 puits d'essai non-producteurs, forés dans des endroits déterminés au préalable par nos prospections au sismographe, ont clairement démontré aussi l'exactitude de nos prédictions. Dans ces cas, nos avis défavorables ont permis à nos clients d'économiser des centaines de mille de dollars. En fait, les prospections au sismographe à réflexion, faites avant le forage, ont à peu près complètement supprimé pour nos clients les aléas du forage et le risque de forer des puits d'essai sans jaillissement.

On doit attribuer notre succès en grande partie aux longues années d'expérience pratique de nos géophysiciens, et aux remarquables instruments construits exclusivement pour notre usage par Rosaire et Kannenstine. Les recherches constantes faites dans leurs laboratoires nous permettent de faire bénéficier nos clients de l'usage de sismographes qui n'ont pas d'égal pour la sensibilité et la précision.

Par l'entremise de notre filiale, la Pathfinder Prospecting Company, nous offrons le même service aux prospecteurs pétroliers des pays étrangers. Veuillez bien écrire en détail. Nous serons heureux de l'occasion de pouvoir prouver nos prétentions, et nous nous ferons un plaisir de vous expliquer l'application du sismographe à réflexion à tout problème particulier de géologie du sous-sol dont vous cherchez la solution.

Independent Exploration Company and Affiliates
2011 Esperson Building, Houston, Texas, U.S.A.
Cable Address: —— **Index, Houston**

BAKER OIL TOOLS ARE DEPENDABLE AND SAFE

Baker Oil Tools are favorably known to experienced operators throughout the world. They are developed to meet modern conditions and each new design or improvement is thoroughly field tested under all conditions before it is offered for sale.

1. Baker Cement Float Shoe: For guiding, floating and cementing casing. Guide and plug are concrete, back pressure valve is made of Bakelite. Provides great strength for the safe landing of casing, yet readily drills up into harmless fragments that circulate away, leaving the hole clear for subsequent operations.

2. Baker Cement Float Collar: A special steel coupling containing a cement and Bakelite float valve. Used one or two joints above the guide shoe. Stops the cementing plug, leaving the cement tailings in the casing so that cement of better consistency is distributed around shoe. Generally used in combination with Baker Cement Float Shoe on long casing strings.

3. Baker Cement Whirler Shoe: Identical in design with the Baker Cement Float Shoe, but with additional side circulation holes which direct the cement upward and around the casing. Insures even distribution of cement. Especially used on long strings of casing to assure cement distribution around the casing.

4. Baker Whirler Cementing Collar: Provides the most efficient means of cementing a combination string or cementing at any depth. Cement plug, Bakelite valve mechanism, and side circulation holes as described above. Placed in the string between screen pipe and casing. Basket acts as outside packer.

5. Baker Cement Guide Casing Shoe: A standard plain casing shoe equipped with a guide of special formula concrete which is very strong, yet is readily drilled up and circulated away—leaving the hole free of any objectionable material.

6. Baker Cable Tool Core Barrel: Has made core drilling with Cable Tools practical and economical. The Inner core-retaining tube rests on bottom of well bore and receives core as the outer drill barrel cuts the formation to full gage.

7. Baker Bakwik Drill Pipe Float: Valve assembly held in place by tool joint pin; removed or replaced without tools. Relieves strain on derrick, rig equipment, lines, brakes. Prevents plugged bits. Made in Standard A.P.I. and Full Hole sizes.

8. Baker Cement Retainer: An inverted cast-iron packer with valve for cementing through tubing under pressure.

9. Baker Rotary Core Barrel: The inner core-retaining tube remains stationary, protecting core from burning, distortion and grinding action. Teeth on Drill Shoe cut a full gage hole. This core barrel drills rapidly.

10. Baker Rotary Hydraulic Expansion Wall Scraper: An underreamer of great expansion. Blades expand by hydraulic action; fold back into body when coming out of hole. Scrapes mud from oil sand; prepares formation for cementing. Provides clearances for liners.

11. Baker Pattern Casing Shoe: Made of high quality steel and used for setting casing in wells drilled with cable tools. The chisel teeth serve to cut off a portion of the hole so that the casing will follow easily. Highly efficient because of correct taper and careful spacing of cutting teeth.

Инструменты фирмы BAKER OIL TOOLS, Inc., пользуются хорошей репутацией у опытных нефтеработников всего мира. Они сконструированы для новейших условий работ, причем всякая новая конструкция или усовершенствование, до выпуска их на рынок, всесторонне испытываются на нефтяных промыслах при всех существующих условиях работ.

1. *Цементный плавающий башмак* BAKER служит для правильного направления и поддержания колонны обсадных труб в плавающем состоянии и для цементации обсадных труб. Направляющие и пробка сделаны из цемента, а клапан обратного давления — из бакелита. Этот башмак обладает большой крепостью, необходимой для безопасного спуска колонны обсадных труб; вместе с тем, он легко высверливается, превращаясь в мелкие кусочки, которые вымываются из скважины циркуляцией грязевого раствора, причем скважина остается чистой для ведения последующих работ.

2. *Цементный плавающий воротник* BAKER состоит из стальной муфты, в которой находится цементный и бакелитовый плавающий клапан. Этот воротник устанавливается на одну или на две трубы выше направляющего башмака. Им задерживается цементная пробка, причем последняя порция цемента остается в обсадных трубах, благодаря чему цемент лучшего состава распределяется вокруг башмака. Этот воротник обычно применяется в комбинации с цементным плавающим башмаком BAKER.

3. *Крутящий цементный башмак* BAKER идентичен по конструкции с цементным плавающим башмаком BAKER, но имеет дополнительные боковые циркуляционные отверстия, которые направляют струю кверху и вокруг обсадных труб, обеспечивая этим равномерное распределение цемента. Они специально применяются при длинных колоннах труб, чтобы быть уверенным в том, что цемент правильно распределился вокруг обсадных труб.

4. *Крутящий цементировочный воротник* BAKER. Он является наиболее продуктивным для цементации комбинированных колонн или цементации на любой глубине. Цементная пробка и бакелитовый механизм клапана, а также и боковые циркуляционные отверстия такие-же, как описаны выше. Эти воротники помещаются на колонне между перфорированными и обсадными трубами. Цементировочная корзина играет роль наружного пакера.

5. *Цементный направляющий башмак* BAKER. Это обыкновенный башмак обсадных труб, снабженный направляющей заливкой из цемента специального состава, отличающегося большой крепостью; вместе с тем, этот цемент легко высверливается и кусочки его уносятся циркуляционным раствором, причем скважина остается чистой.

6. *Грунтоноска* BAKER *для канатного бурения*. При помощи этой грунтоноски получение колонок грунтов при канатном бурении производится практично и экономно. Внутренняя колонковая труба опирается о дно скважины и в нее поступает грунт, а наружная бурильная труба срезывает формации по полному диаметру скважины.

7. *Поплавок* Baker Bakwik *для бурильных труб*. Комплектный клапан удерживается на месте пальцем соединительного замка; он снимается или заменяется без инструментов. Благодаря ему уменьшается нагрузка на вышку, на бурильные механизмы, канаты и тормаза. Он не дает долоту завязнуть в грунте. Эти поплавки изготовляются по стандарту A.P.I. (Американского Нефтяного Института) для бурильных труб всех размеров.

8. *Удерживатель цемента* BAKER представляет собою опрокинутый пакер с клапаном для цементации под давлением через насосные трубы.

9. *Грунтоноска* BAKER *для вращательного бурения* сконструирована так, что внутренняя труба, куда входит колонка грунта, остается неподвижной, вследствие чего образец грунта никогда не прогорает, не портится и не обдирается. Зубья режущего долота прорезывают отверстие полного диаметра. Эта грунтоноска дает быструю проходку.

10. *Боковой скребок* BAKER *для вращательного бурения с гидравлически выдвигающимися лезвиями*, представляет *собою расширитель с большим расширением*. Его лезвия выдвигаются гидравлическим давлением и складываются обратно в корпус расширителя при подъеме его из скважины. Они сцарапывают грязь с поверхности нефтеносных песков и подготовляют грунт для цементации, а также освобождают место для кожухов.

11. *Башмак обсадных труб модели* BAKER. Он изготовляется из стали высокого качества и служит для установки колонны обсадных труб при канатном бурении. Режущие зубья башмака служат для срезывания части грунта со стенок скважины, с тем, чтобы колонна обсадных труб спускалась свободно. Башмак работает чрезвычайно продуктивно благодаря правильному конусу и тщательному распределению режущих зубьев.

Las herramientas petroleras Baker constituyen la preferencia de los explotadores de petróleo de gran experiencia, en todas partes del mundo. Han sido ideadas y construídas para satisfacer perfectamente las exigencias modernas. Todo perfeccionamiento o innovación no es adoptada sino después de haber sido ampliamente demostrada en el campo de la práctica, bajo todas las condiciones imaginables de servicio.

1. *Zapata Baker de Flotador de Cemento*: Para la guía, la descención y la cementación de revestimientos de pozos. La guía y el obturador son de hormigón y la válvula de retención, de baquelita. Esta zapata asegura una gran fuerza para permitir la bajada del revestimiento con toda seguridad, y ofrece la ventaja de reducirlo, sin dificultad, en fragmentos insignificantes durante la perforación, fragmentos que desaparecen por la circulación, dejando así un agujero de perforación sin obstrucción, listo para permitir, sin pérdida de tiempo, las operaciones siguientes.

2. *Collar Baker de Flotador de Cemento*: Un acoplamiento de acero especial, que contiene cemento y una válvula de flotador de baquelita. Emplea una o dos uniones arriba de la zapata guiadora. Cierra el obturador de cementación, dejando los residuos de cemento en el revestimiento de los pozos, de modo que un cemento de mejor consistencia queda distribuido alrededor de la zapata. Se emplea generalmente en combinación con la zapata Baker de flotador de cemento en los revestimientos de gran longitud.

3. *Zapata Giratoria Baker para Cemento*: De construcción idéntica a la zapata Baker de flotador de cemento, pero tiene, además, aberturas laterales suplementarias de circulación, que dirigen el cemento hacia arriba y alrededor del revestimiento de los pozos, asegurando así una distribución satisfactoria de cemento alrededor del revestimineto.

4. *Collar Giratorio Baker para la Cementación*: Representa el medio más eficas para la cementación de combinaciones de perforación y para cementar a toda profundidad. Obturador de cemento, válvula de baquelita y agujeros laterales de circulación, como se describen arriba. Se coloca en el pozo entre la tubería de filtración y el revestimiento. La jaula sirve de empaquetadura exterior.

5. *Zapata Guiadora de Cemento Baker para Revestimiento de Pozos*: Una sencilla zapata normal de revestimiento, provista de una guía de hormigón de fórmula especial de lo más resistente, que se elimina fácilmente durante la perforación, saliendo con la circulación, lo que produce un pozo exento de todo cuerpo extraño que pueda dificultar las operaciones.

6. *Tubo o Cañón Baker para Sacar Muestras con Herramienta de Cable*: Hace muy fácil el sacar muestras con herramienta perforadora de cable. El tubo interior, en que va la muestra, reposa sobre el fondo del agujero de perforación y recibe la muestra en que el tubo de perforación exterior corta la formación al diámetro completo.

7. *Flotador "Bakwik" para Tubos Perforadores*: El grupo valvular se sujeta por el eje de la unión de la herramienta. Se quita y se repone sin ninguna herramienta. Reduce considerablemente el esfuerzo impuesto sobre la grúa, el aparejo de perforación, la tubería y los frenos. Evita el atascamiento de los taladros. Se fabrican en tamaños normales A. P. I. y en tamaños llamados "agujeros completos".

8. *Retenedores Baker para Cemento*: Una empaquetadura invertida de hierro fundido con válvula para cementar, bajo presión, toda la longitud de la tubería.

9. *Tubo o Cañon Baker Rotatorio para Sacar Muestras*: El tubo interior, donde se retiene la muestra, queda fijo, dejando la muestra protegida contra la imflamación, distorsión y pulverización. Los dientes de la zapata de perforación cortan un agujero de tamaño completo. Este tubo rotatoria para sacar muestras gira con mayor rapidez.

10. *Rascador de Pared Baker, tipo Rotatorio, de Expansión Hidráulica*: Un escariador de gran poder de expansión. Las láminas se dilatan por por acción hidráulica y se repliegan contra el cuerpo al salir del agujero. Raspa el lodo de la arena; prepara la formación para su cementación. Provee espacio suficiente para la canalización.

11. *Zapata Modelo Baker para Revestimiento*: De acero de calidad superior. Se emplea para colocar bien el revestimiento en los pozos perforados por medio de herramientas de cable. Los dientes agudos sirven para cortar una parte de la pared del pozo, para que el revestimiento siga sin dificultad. Gran rendimiento, gracias a la conicidad exacta y a la separación precisa de los dientes cortantes.

Les outils pétroliers Baker font la préférence des exploitants pétrolifères expérimentés dans le monde entier. Ils ont été conçus et construits en vue de donner satisfaction aux exigences modernes, et chaque perfectionnement ou dessin nouveau n'est adopté définitivement qu'après avoir été éprouvé sur le chantier même dans toutes les conditions imaginables.

1. *Sabot Baker à Flotteur de Ciment*: Pour le guidage, la descente et la cémentation du revêtement de puits. Le guide et l'obturateur sont en béton, la soupape de retenue en bakélite. Ce sabot assure une grande force pour permettre la descente du revêtement en toute sécurité, et cependant se réduit sans difficulté en fragments quasi-impondérables au cours du forage, fragments qui se trouvent entraînés par la circulation, laissant ainsi un trou de forage non obstrué permettant d'entamer d'autres opérations sans perte de temps.

2. *Collier Baker à Flotteur de Ciment*: Un raccord en acier spécial, contenant un ciment, et une soupape à flotteur en bakélite. Emploie un ou deux joints au-dessus du sobot-guide. Ferme l'obturateur de cémentation, laissant les résidus de ciment dans le revêtement du puits, de sorte qu'un ciment d'une meilleure consistance se trouve distribué autour du sabot. S'emploi généralement en combinaison avec le sabot Baker à flotteur de ciment, sur les revêtements de grande longueur.

3. *Sabot Baker brasseur de ciment*: De construction identique au sabot Baker à flotteur de ciment, mais possède en plus des ouvertures latérales supplémentaires de circulation, qui dirigent le ciment vers le haut et autour du revêtement de puits, assurant ainsi une distribution satisfaisante du ciment autour de ce revêtement.

4. *Collier-Brasseur Baker pour la Cémentation*: Assure le moyen le plus efficace pour la cémentation de combinaisons de forage ou pour cimenter à toute profondeur. Obturateur de ciment, soupape en bakélite, et trous latérauts de circulation, comme ci-dessus. Se place dans le puits entre le tuyau de filtrage et le revêtement. La cage sert de garniture extérieure.

5. *Sabot Baker guide-ciment pour Revêtement de puits*: Un simple sabot standard de revêtement, muni d'un guide de béton de formule spéciale des plus résistants, s'élimine cependant facilement lors du forage par entrainement avec la circulation—ce qui laisse le puits exempt de tout corps étranger de nature à entraver les opérations.

6. *Tube de Carottage Baker pour Outil à Câble*: A rendu très commode et très pratique le forage avec carottage au moyen d'outils à câble. Le tube intérieur, qui retient la carotte, repose sur le fond du trou de forage et reçoit la carotte au moment où le tube de forage extérieur entaille la formation à la cote intégrale.

7. *Flotteur de Tuyau de Forage Baker "Bakwik"*: Groupe de soupape maintenu par l'axe du joint d'outil; s'enlève et se remplace sans aucun outil. Réduit considérablement les efforts imposés à la grue, à l'appareillage de forage, aux tuyaux et freins. Empêche les trépans de se boucher. Fabriqué en grandeur standard A. P. I. et en grandeur dite de "Trou à la cote."

8. *Dispositif Baker de Retenue de Ciment*: Une garniture inversée en fonte, avec soupape pour cimenter sous pression toute la longueur du tubage.

9. *Tube de Carottage Rotatif Baker*: Le tube intérieur, de retenue de carotte, reste fixe, mettant la carotte à l'abri d'inflammation, de distorsion et de rodage. Les dents du sabot de forage taillent un trou à la cote. Ce tube de carottage fore des plus rapidement.

10. *Racleur de Parois Baker, Rotatif, à Expansion Hydraulique*: Un sous-alésoir de grand pouvoir d'expansion. Les lames s'en dilatent par action hydraulique; se replient à l'intérieur du corps de l'instrument à la sortie du trou de forage. Racle la boue des sables pétroliers; prépare la formation à exploiter à la cémentation. Assure la place suffisante aux canalisations.

11. *Sabot-modèle Baker pour Revêtement*: En acier de qualité supérieure et employé pour mettre en place le revêtement dans les puits forés au moyen d'outils à câbles. Les dents cisaillantes servent à entailler une partie de la paroi du puits pour que le revêtement suive sans difficulté. Grande efficacité grâce à la conicité exacte et à l'espacement précis des dents coupantes.

BAKER OIL TOOLS, INC. P. O. Box 609, Huntington Park, California, U.S.A.

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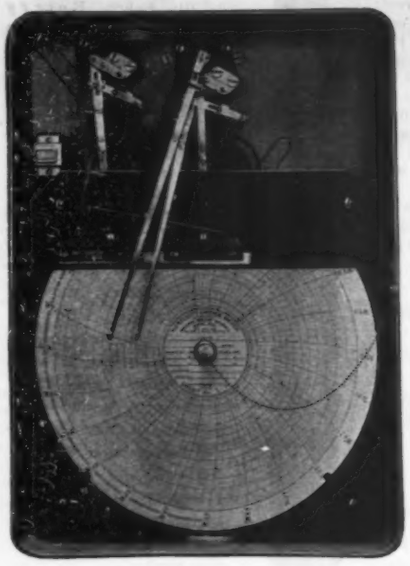
AUTOMATIC INTEGRATING METERS AND DEVICES

The entire history of American Meter Company has been devoted to providing accurate measurement of volumes as minute as the smallest gas pilot light's flow . . and maintaining that degree of accuracy through the entire range of applications.



Integrating Orifice Meter With Cover Removed

American Meter Company has pioneered in both displacement and orifice measurement. It is known throughout the world for its integrating meters which give totalised readings of the quantity of gas, steam, air, oil, water and other liquids passing through the line, automatically computing the flow at the proper factors for pressure, temperature, etc.

These integrating devices include:

INTEGRATING ORIFICE METERS which automatically compute the metered volume for variation in pressure and rate of flow. The index totalizes the quantity for all rates of flow and variations in pressure. The chart gives a continuous record of rates of flow and pressure.

INTEGRATING FLOW METERS operate on the same principle, but at constant pressure.

BASE PRESSURE INDEXES, for displacement meters, automatically multiply the volume at pipe line conditions by the proper pressure factor.

BASE VOLUME INDEXES register the quantity at standard conditions of base temperature as well as base pressure.

Вся история фирмы American Meter Company была посвящена созданию счетчиков для аккуратного измерения объемов протекающего газа, начиная от таких крошечных количеств, какие необходимы для поддержания самого маленького огонька... и, с той же степенью аккуратности, до любых количеств встречающихся на практике.

Фирма American Meter Company была пионером по счетчикам обоих типов, как работающих объемными вытеснениями, так и счетчиков с отверстием (Orifice). Эта фирма известна по всему миру своими интегрирующими счетчиками, которые дают суммарные показания количеств газа, пара, воздуха, нефти, воды или других жидкостей, протекающих по трубе, автоматически подсчитывая таковые для определенных давлений, температур и проч.

К интегрирующим инструментам, изготовляемым фирмой, относятся:

ИНТЕГРИРУЮЩИЕ СЧЕТЧИКИ С ОТВЕРСТИЕМ (INTERGATING ORIFICE METERS), которые автоматически подсчитывают пропущенные объемы при изменяющихся давлениях и разных количествах. Таблица дает суммарные цифры для любых объемов и разных давлений. На диаграмме бланка получается непрерывная запись объемов и давлений.

ИНТЕГРИРУЮЩИЕ СЧЕТЧИКИ (INTEGRATING FLOWMETERS) работают по тому же принципу, но при постоянном давлении.

ТАБЛИЦЫ ДЛЯ ПОПРАВОК НА ДАВЛЕНИЕ (BASE PRESSURE INDEXES) применяются при счетчиках, работающих объемным вытеснением и автоматически умножают объем, указанный при условиях существующих в данной линии, на коэффициент дающий поправку на правильное давление.

ТАБЛИЦЫ ДЛЯ ОБЪЕМНЫХ ПОПРАВОК (BASE VOLUME INDEXES) регистрируют объем при нормальных условиях основных температур, а также основных давлений.

Технический бюллетень этих приборов высылается по требованию.

La American Meter Company, desde su fundación, se ha dedicado a construir instrumentos de precisa medición de volúmenes, hasta los más insignificantes, como son, por ejemplo, las corrientes de gas de la más pequeña luz piloto o mechero, conservando este grado de exactitud en la escala completa de sus aplicaciones.

La American Meter Company ha sido la primera en profundizar los estudios en medición de desplazamiento y orificio. Goza de merecida reputación en todo el mundo por sus contadores integrales, que dan, en exactas cifras totales, la cantidad de gas, vapor, aire, petróleo, agua y otros líquidos, que pasan por una tubería, computando automáticamente la corriente de acuerdo con los factores de presión, temperatura, etc.

Entre estos interesantes instrumentos se incluyen los siguientes:

CONTADORES INTEGRALES DE ORIFICIO, que computan automáticamente el volumen medido, en lo tocante a variación de presión y régimen de corriente. El índice totaliza la cantidad para todas las velocidades de corriente y variaciones de presión. La cartilla da un registro continuo del movimiento de la corriente y de la presión.

CONTADORES DE CORRIENTE INTEGRALES. Estos instrumentos funcionan sobre el mismo principio científico, pero a presión constante.

INDICES BASICOS DE PRESION, para contadores de desplazamiento, que multiplican automáticamente el volúmen en la línea o tubería, por el debido factor de presión.

INDICES BASICOS DE VOLUMEN, para registrar las condiciones normales de la temperatura y de la presión básicas.

A solicitud enviaremos boletines técnicos sobre estos instrumentos, a los interesados, que los pidan.

La American Meter Company a consacré toute son existence à fournir des mesures précises de volumes aussi minimes que le débit de la veilleuse la plus petite . . . et à maintenir le même degré de précision dans toute la gamme des diverses applications.

Elle est un des pionniers dans le domaine de la mesure des déplacements et aux orifices. Elle est célèbre dans le monde entier pour ses compteurs intégrateurs qui fournissent une indication totalisée des quantités de gaz, de vapeur, d'air, d'huile, de pétrole, d'eau et d'autres liquides passant par la conduite, calculant automatiquement le débit en fonction des facteurs appropriés de pression, température, etc.

Ces dispositifs intégrateurs comprennent:

Les COMPTEURS INTÉGRATEURS D'ORIFICES qui calculent automatiquement le volume compté, selon la variation de la pression et le débit du courant. L'index totalise la quantité pour tous les débits de courant et toutes les variations de pression. La carte donne un enregistrement continu du debit de courant et de la pression.

Les COMPTEURS D'ECOULEMENT INTÉGRATEURS qui fonctionnent sur le même principe mais à pression constante.

Les INDEX ou INDICATEURS DE PRESSION DE BASE, pour les compteurs de déplacement, qui multiplient automatiquement le volume aux conditions prévalent dans la conduite par le facteur de pression approprié.

Les INDEX ou INDICATEURS DE VOLUME DE BASE qui enregistrent la quantité aux conditions courantes de température de base ainsi que de pression de base.

Bulletins techniques concernant ces dispositifs envoyés sur demande.

AMERICAN METER COMPANY

INCORPORATED
ESTABLISHED 1836
60 East 42nd Street
New York, U.S.A.

ROEBLING WELDING WIRE

Roebling Welding Wire is unvarying in quality and uniformity and produces strong, tough welds, because of the painstaking methods of its manufacture.

The steel is made in our own small open-hearth furnaces, thus permitting rigid inspection of each individual melt, and each succeeding step of its manufacture must conform to exacting Roebling standards.

Roebling Welding Wire is made in both gas and electric types for general oil field use and pipe line construction.

Write for samples for testing.

Сварочная проволока Roebling отличается однородностью качеств и размеров. Благодаря тщательности ее изготовления, сварка этой проволокой получается прочной и твердой.

Сталь для проволоки изготовляется в наших небольших мартеновских печах, что дает возможность строгой инспекции каждой индивидуальной выплавки. Точно также и все последующие операции производятся очень тщательно, с целью получения однородных стандартных результатов.

Сварочная проволока изготовляется двух типов, а именно для газовой и электрической сварки. Она применяется для разных работ на нефтяных промыслах, а также при сварке трубопроводов. Требуйте образцы для испытаний.

El Alambre Soladador de Roebling es de calidad y uniformidad invariables, y produce soldaduras fuertes y tenaces a causa del cuidado y esmero de su manufactura.

El acero es fabricado en los pequeños altos hornos de nuestra propiedad, lo que permite una inspección rígida de cada colada individual así como de los pasos sucesivos de su manufactura para que esta resulte la típica de las normas Roebling.

El Alambre Soldador de Roebling se fabrica tanto para soldar con gas o por electricidad, para uso general en los campos de petróleo en la construcción de las líneas de tuberías. Escriba por muestras de prueba.

Le Fil à souder Roebling est d'une qualité supérieure uniforme, et permet d'obtenir des soudures fortes et tenaces par suite de l'application de méthodes soigneusement mises au point dans sa fabrication.

L'acier en est fabriqué dans nos propres fours du type Martin de petite dimensions, ce qui permet d'appliquer à chaque coulée individuelle une inspection serrée, et chaque phase successive de sa fabrication doit se conformer strictement aux standards Roebling.

Le Fil à souder Roebling se fabrique tant du type à souder au gaz que du type à souder à l'électricité, en vue de l'emploi général au champ pétrolifère et pour l'établissement des canalisations. Demandez-nous des échantillons à essayer.

Samples gladly sent upon request.

JOHN A. ROEBLING'S SONS COMPANY

Trenton, New Jersey, U.S.A.

Welding Wire Distributors for Oil Fields
FRICK-REID SUPPLY CORP.
Pittsburgh, Pa. Tulsa, Okla.
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For the past eight years Patterson - Ballagh Protectors have been preferred in drilling practically all rotary deep wells. Distributed to active drilling fields throughout the world. These Protectors reduce power costs, prevent excessive friction, prevent contact of drilling pipe against casing, minimize hazards of water - leaks, twist-offs and other troubles. These are the extra-long Protectors. Available to fit all sizes of drill pipe.

Send for complete descriptive catalog.

За последние семь лет буровые мастера при бурении почти всех глубоких скважин, предпочитают пользоваться резиновыми предохранительными кольцами Patterson-Ballagh. Ими изготовлено более 600.000 таких колец, которыми пользуются по всему миру при производстве буровых работ. Эти предохранительные кольца уменьшают расход энергии, исключают чрезмерное трение, седопускают соприкосновения бурильных труб с обсадными трубами, доводят до минимума утечки воды, случаи срыва резьбы на трубах и другие неполадки. Эти предохранительные кольца изготовляются экстра-большой длины и пригодны для бурильных труб всех размеров.

Требуйте наш каталог с подробным описанием предохранительных колец.

Durante estos últimos siete años, los protectores Patterson-Ballagh han sido los más preferidos para la perforación rotativa de los principales pozos profundos. Más de 600.000 se han construido por nosotros y distribuidos por todos los campos petrolíferos activos del mundo entero. Estos protectores reducen el costo de la fuerza, evitan el rozamiento excesivo, impiden el contacto del tubo perforador con el revestimiento, desminuyen los peligros de escape de agua, torceduras y otras irregularidades por el estilo. Estos protectores son de longitud extraordinaria y se ofrecen en tamaños adecuados a todo tubo perforador.

Pídanos catálogo descriptivo.

Au cours des sept dernières années, les Protecteurs Patterson-Ballagh ont eu la préférence dans le forage de la quasi-totalité des puits profonds rotatoires. Nous en avons fabriqué plus de 600.000 que nous avons distribués aux champs de forage pétrolier en exploitation, dans le monde entier. Ces Protecteurs réalisent une économie de consommation d'énergie, suppriment le frottement excessif, empêchent le tuyau de forage de s'appuyer contre le revêtement du puits, réduisent à un minimum les risques de fuite d'eau, de faussage et autres perturbations du fonctionnement. Ces Protecteurs sont du type extra-long. Il en est offert un assortiment permettant de choisir le modèle proprié à toute grandeur de tuyau de forage.

Demandez-nous notre complet catalogue descriptif.

PATTERSON-BALLAGH CORPORATION

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Export shipment of Aquagel leaving Los Angeles plant.

AQUAGEL

Trouble-Proof Colloidal Drilling Mud or Mud Conditioner

AQUAGEL is a specially selected and processed clay which contains a high concentration of gel type colloids. This type of colloid is found in small quantities in all clays and is responsible for most of the desirable qualities of the customary drilling muds. It is these gel type colloids or gel forming colloids which give clays the property of walling up the hole as it is being drilled. AQUAGEL contains at least ten times as much gel forming colloids as do the ordinary clays customarily used for drilling.

AQUAGEL and water mixed together make an excellent drilling mud which weighs 64 lbs. per cubic foot (specific gravity 1.03) and has excellent sealing and wall building properties.

Ordinarily clay drilling fluids may be conditioned and their wall building characteristics improved by the addition of one or two per cent of AQUAGEL by weight. A good drilling mud can thus be made from any ordinary clay by the addition of a small percentage of AQUAGEL.

AQUAGEL, when properly used in drilling muds, provides cheap insurance against costly fishing jobs. The proper use of AQUAGEL will prevent loss of circulation, prevent caving, prevent stuck drill pipe, reduce abrasion, suspend drilling mud solids so they will not settle out when circulation is suspended, seal off minor flows of gas and water, insure landing of long strings of casing without sticking and insure positive water-tight shut-offs in an admixture with cement.

AQUAGEL представляет собой специально отобранную и обработанную глину, которая содержит коллоиды высокой концентрации типа гелей. Этот тип коллоидов имеется в малых количествах во всех глинах и от него зависят необходимые качества обычных грязевых растворов. Каллоиды этого типа, образующие гели, имеют свойство придавать глине способность обмуровывания стенок скважины.

AQUAGEL содержит в десять раз больше этих образующих гели коллоидов, чем обыкновенные глины, обычно употребляемые при бурении.

AQUAGEL в смеси с водой дает прекрасный грязевой раствор для бурения. Вес его составляет 64 англо-фунта на 1 кубич. фут. (удельный вес 1.03) и он имеет отличные обмуровывающие качества.

Обычные грязевые растворы могут быть улучшены и их обмуровывающие качества усилены прибавлением AQUAGEL от 1 до 2-х процентов по весу. Таким образом обычный грязевой раствор может быть улучшен прибавлением небольшого количества AQUAGEL.

Правильное употребление AQUAGEL в грязевых растворах страхует от дорогостоющих ловильных работ. Правильное употребление AQUAGEL предотвращает утечку циркуляционного раствора, образование обвалов, захват бурильных труб, уменьшает износ от истирания, поддерживает состав грязевого раствора, так что при остановке циркуляции, в нем не образуется осадков; закупоривает небольшие водяные и газовые щели, обеспечивает спуск длинных колонн обсадных труб без удара их о дно скважины и, при смешении его с цементом, обеспечивает надежное закрытие воды.

Aquagel es una arcilla especialmente elegida y tratada, que contiene una gran concentración de coloides de tipo gelatinoso. Este tipo de coloide se halla en pequeñas cantidades en todas las arcillas y es responsable de la mayor parte de las buenas propiedades de los barros comunes que se utilizan en la perforación de pozos. Es este tipo de coloide de tipo gelatinoso lo que imparte a las arcillas la propiedad de proteger o cerrar el agujero mientras se perfora. Aquagel contiene, por lo menos, diez veces más coloide gelatinoso, que las arcillas que ordinariamente se emplean para la perforación.

Aquagel, mezclado con agua, produce un excelente barro de perforación, que pesa 64 libras por pié cúbico (peso especifico, 1.03) caracterizándose por notables propiedades como tapador y reforzador de pared.

Los liquidos ordinarios de arcilla para perforación pueden acondicionarse, para aumentarles sus caracteristicas refortalecedoras de pared, con la adición de 1 o de 2% de Aquagel, por peso. De este modo se puede preparar un buen barro de perforación, con cualquiera arcilla ordinaria.

Aquagel, correctamente empleado en barros de perforación, provee un seguro muy económico contra costosos trabajos de reconstrucción. La atinada utilización de la Aquagel evita la pérdida de circulación, impide el hundimiento, hace imposible el atascamiento del tubo de la broca o taladro, reduce el desgaste, suspende las particulas sólidas del barro de perforación, para que no se asienten al cesar la circulación, tapa los pequeños escapes de gas y agua, asegura la colocación le largas hileras de forros sin que se incrusten y da completa seguridad de cierre hermético al agua cuando se combina con cemento.

AQUAGEL est une argile spécialement sélectionnée et traitée, qui a une forte teneur de colloides du type gélatineux. Ce type de colloide existe en petites quantités dans toutes les argiles et est l'élément qui communique les qualités désirables aux boues géneralement employées pour le forage. Ce sont ces colloides du type gélatineux ou colloides à formation gélatineuse que élement aux argiles la propriété d'enuire le trou de sondage au fur et à mesure de son forage. AQUAGEL contient au moins dix fois plus de colloides a formation gélatineuse que les argiles couramment employées dans le forage.

AQUAGEL mélangé à l'eau constitue une boue pour forage excellente qui pèse 64 lbs. au pied cube (poids spécifique 1,03) et possède des propriétés remarquables comme isolant et enduit protecteur des parois.

On peut conditionner les fluides ordinaires argileux pour forage et on peut en améliorer les propriétés en tant qu'enduit en y ajoutant un ou deux pour cent du poids d'AQUAGEL. On peut ainsi préparer une excellente boue pour forage à partir de toute argile ordinaire par addition d'un faible pourcentage d'AQUAGEL.

AQUAGEL, correctement introduit dans les boues de forage, procure une assurance très économique contre les repéchages onéreux. L'emploi convenable d'AQUAGEL élimine les déperditions de circulation, empêche les éboulements, élimine les coincements de tube de forage, diminue l'abrasion, met en suspension les particules solides de boue de forage les empêchant ainsi de se déposer quand on interrompt la circulation, arrête les écoulements secondaires de gaz et d'eau, assure la pose de longues colonnes de cuvelage qui risqueraient autrement de se coincer, et assure une fermeture positivement étanche à l'eau quand on le combine à du ciment.

BAROID SALES COMPANY

LOS ANGELES, CALIF., U.S.A. HOUSTON, TEXAS, U.S.A.

MOLY

. . . an alloy every oil man should know

Moly is an abbreviation for Molybdenum—an alloy that plays an important part in oil production and refining.

From the pipe couplings in the well to the mighty return bends, the oil industry requires the highest grade steels. Molybdenum, usually in combination with other alloys, imparts to steel the physicals needed to fill any special need.

The 4%-6% chromium tubing containing Molybdenum is proving itself the steel best suited for high temperature oil still parts. Similarly, nickel-molybdenum steels and the lower percentage chrome-molybdenum steels are consistently solving the other oil production steel problems.

Any executive interested in oil production and refining should be familiar with the advantages Molybdenum imparts to steel and iron. Molybdenum usually provides an inexpensive and efficient solution to any steel or iron problem. Write for "Molybdenum," our free book containing detailed information about this important alloy. Ask about our free engineering and experimental facilities at your service.

Moly есть сокращенное название Малибдена — сплава, который занимает важное место в нефтяной и нефтеперегонной индустриях.

Начиная от муфт для труб нефтяных скважин и кончая ответственными возвратными головками, нефтяная индустрия требует для своего оборудования высококачественную сталь. Малибден, обычно в комбинации с другим сплавом, придает стали те физические свойства, которые требуются для любых специальных целей.

Сталь, содержащая от 4%—6% хрома и с примесью Молибдена, является лучшей сталью для изготовления труб для нефтеперегонных печей, работающих при высоких температурах. Точно также никель-молибденовые стали и стали с низким содержанием хром-молибдена непрерывно разрешают требования на специальные стали для нефтяной индустрии.

Каждый нефтеработник, заинтересованный в добыче или переработке нефти, должен быть знаком с теми физическими качествами, которые сообщаются стали и железу добавкой молибдена. Молибден обычно является дешевым и надежным средством для разрешения задач получения любых сталей и любого железа. Требуйте нашу бесплатную книгу "Molybdenum", в которой имеются детальные сведения об этом ценном сплаве. Требуйте наши бесплатные технические советы и услуги по специальным исследованиям.

Moly es la abreviatura de Molybdenum —una aleación que tiene parte muy importante en la producción y refinación de petróleo.

Desde los empalmes de los tubos en los pozos hasta los codos y curvas más grandes, la industria del petróleo requiere el más alto grado de acero. Molybdenum generalmente en combinación con otras aleaciones, da al acero lo que físicamente necesita para satisfacer cualquiera exigencia especial.

Las tuberías de 4 a 6 por ciento de cromo que contienen molibdeno, es el mejor acero propio para las altas temperaturas de las piezas en los alambiques de petróleo. Todo director interesado en producción y refinación de petróleo debiera conocer las ventajas que el Molibdenum da al hierro y al acero. El Molybdenum generalmente da el medio eficáz y no costoso de resolver los problemas de hierro o acero.

Escriba pidiendo "Molybdenum" nuestro libro gratis que contiene informes detallados de esta aleación importante. Preguntenos acerca de nuestras facilidades gratis de ingeniería que están a sus ordenes.

Moly est une abréviation de Molybdenum—un alliage qui joue un rôle important dans la production et le raffinage du pétrole.

Depuis les accouplements de tubage dans le puits jusqu'aux grandes courbes de retour, l'industrie pétrolifère a besoin d'aciers de toute première qualité. Le molybdène, généralement en combinaision avec d'autres alliages, communique à l'acier les propriétés demandées pour satisfaire tout besoin particulier.

Le tubage à 4%-6% de chrome et à teneur de molybdène est reconnu de plus en plus comme l'alliage d'acier convenant le mieux pour les pièces de l'alambic de pétrole soumises à des températures élevées. De même, les aciers au nickel-molybdène et les aciers à faible teneur de chrome-molybdène permettent de résoudre constamment les autres problèmes de la production du pétrole relatifs à l'acier.

Tout chef dans une entreprise de production ou de raffinage de pétrole ne devrait pas ignorer les avantages que le molybdène communique à l'acier et au fer, Le molybdène fournit généralement une solution économique et efficace à tout problème relatif au fer ou à l'acier. Demandez-nous de vous envoyer gratuitement notre livret "Molybdenum" qui contient des renseignements détaillés sur cet alliage important. Profitez des facilités techniques et expérimentales que nous mettons gratuitement à votre disposition.

CLIMAX MOLYBDENUM COMPANY

500 FIFTH Avenue, New York, U.S.A.

In Canada: Railway & Power Engineering Corp., Ltd., Montreal.

Cable Address: "MOLYBDENUM" New York.

ACCURATE CONTROL ASSURES MAXIMUM YIELD

Only through accurate process control can refineries operate profitably today. Larger units, higher temperatures and pressures, closer limits, greater flexibility, more complete separation and higher quality of refined products make dependable, uninterrupted control of temperatures, pressures, flows and liquid levels necessary.

The Brown Centralized Control Board shown above typifies a modern installation in an outstanding refinery, and illustrates the use of tower controllers, hot oil flow controllers, flow meters, and recording and indicating potentiometers for oil temperatures.

For suggested applications and catalogs in which they are described, refer to the full-page advertisement which appears in this issue.

The Brown Instrument Company has pioneered many oil refinery applications and hundreds of installations have been made in foreign oil refineries. Our distributors are located in most foreign countries. See partial list below:

Современные нефтеперегонные заводы могут работать с прибылью только при точном контроле процессов производства. Более мощные установки, более высокие температуры и давления, более строгие пределы спецификаций, требуемая гибкость установок, более совершенное отделение и лучшие качества нефтепродуктов, — все это требует непрерывного контроля температур, давлений, количества протекаемых жидкостей и уровней таковых.

Центральная контрольная доска BROWN изображенная выше, представляет собою современную установку на хорошем нефтеперегонном заводе. На ней установлены приборы для контроля работы колонн, контроля протекаемого количества горячей нефти и нефтепродуктов, а также и самозаписывающие и обыкновенные потенциометры для указаний температур нефти.

Справки о каталогах, в которых имеется описание этих инструментов, могут быть найдены в нашем объявлении, помещенном на целой странице этого журнала.

Фирма BROWN INSTRUMENT COMPANY является пионером в области снабжения нефтеперегонных заводах. Мы имеем представителей почти во всех странах.

Las refinerías actuales no pueden trabajar teniendo utilidades, sino es con regulación perfecta en sus procedimientos. Grandes unidades, temperaturas y presiones más altas, límites más estrechos, mayor adaptabilidad, separación más completa y más alta calidad de los productos refinados se hacen con confianza, teniendo la regulación sin interrupción de las temperaturas, presiones, corrientes y niveles de los líquidos.

El Tablero Brown de Regulación Central que se ve arriba es típico de una instalación moderna de una refinería notable, e ilustra el uso de los reguladores de torre, reguladores del flujo del petróleo caliente, contadores de corriente de líquidos y potenciometros registradores e indicadores de las temperaturas del petróleo.

La Brown Instrument Company ha sido la iniciadora en muchas refinerías de petróleo de sus aplicaciones, y centenares de instalaciones se han hecho en las rrefinerías de petróleo del extranjero. Nuestros distribuídores se encuentran localizados en la mayor parte de los países extranjeros.

Ce n'est que par un contrôle parfait que les raffineries peuvent, de nos jours, fonctionner sur une base rémunératrice. Des installations plus grandes, des pressions et des températures plus élevées, des limites plus étroites, une plus grande adaptabilité, une séparation plus complète des produits raffinés ainsi qu'une qualité meilleure de ceux-ci dendent nécessaire un contrôle de toute sécurité et continu des températures, des pressions, des courants et des niveaux des liquides.

Le Panneau de Commande Centralisée Brown représenté ci-dessus est le type d'une installation dans une raffinerie de première importance, et fait ressortir l'emploi des tours de contrôle, des régulateurs de la circulation du pétrole chaud, des compteurs de courant, et des potentiomètres enregistreurs et indicateurs pour les températures du pétrole.

En ce qui concerne les applications suggérées et les catalogues où elles se trouvent décrites, se reporter à l'annonce d'une page insérée dans le présent numéro.

La Brown Instrument Company a été un pionnier dans un grand nombre d'applications de raffinerie pétrolifère, et des centaines d'installations ont été faites dans des raffineries pétrolifères à l'étranger. Nous avons des distributeurs dans la plupart des pays étrangers.

We manufacture Pyrometers, Thermometers, Flow Meters, Indicating, Recording and Controling Instruments. Catalogs gladly sent on request.

BROWN INSTRUMENTS

(a division of Minneapolis-Honeywell Regulator Co.)

4488 Wayne Avenue **Philadelphia, Penn., U.S.A.**

Cable Address: **"BROWNSON-PHILADELPHIA."**

R. C. Knight e Hijo—Buenos Aires. Les Applications Electro—Brussels. Lovick Johnson Company—London. Societe d'Applications—Paris. Zoetmulder & Van Winkel—The Hague. Henry Coe & Cleriei—Milan. Yamatake & Co.—Tokyo. Balkan States Trading—Bucharest.

SPERRY-SUN WELL SURVEYING INSTRUMENTS

Sectional view of a SYFO Clinograph

Since the discovery of the first oil well there have been many important production developments—among which the Sperry-Sun Surveying Devices are recognized as outstanding contributions to the industry.

We offer to the industry three instruments—the Surwel, the H-K and the Syfo Clinographs.

The Surwel Gyroscopic Clinograph surveys a well by photograph process accurately and records the vertical deviation and direction at all depths. It is the only instrument which is not affected by Tortuosity nor by Magnetic Influence when recording. The Surwel is self-checking and the records permanent.

The H-K Directional Magnetic Clinograph records in single readings both the amount and the direction of inclinations by photographic process. It is designed for Open Holes only. It is fast, extremely accurate since the results are available to the drill crew within five minutes after the instrument comes out of the hole.

The Syfo Clinograph permits accurate control of inclination in drilling operations. The tests are accurately and easily made without the use of dangerous acids. It quickly and very inexpensively furnishes daily records on paper of vertical deviation in drilling.

С момента открытия первой нефтяной скважины было сделано много важных изобретений и усовершенствований, среди которых аппараты Sperry-Sun для исследования скважин признаны как принесшие самую ценную дань в пользу этой индустрии.

Мы предлагаем нефтяной индустрии три инструмента: Clinograph Surwel, Clinograph H-K и Clinograph Syfo.

Жироскопический Clinograph Surwel дает фотографическим процессом аккуратную отметку отклонения скважины от вертикальной линии и направление этого отклонения на любой глубине. Это единственный инструмент, на показание которого не отражается ни *извилистость скважины*, ни *магнитное влияние*. Аппарат Surwel сам себя выверяет и его отметки могут сохраняться в архиве.

Магнитный Clinograph H-K отмечает на одной и той же пластинке фотографическим процессом как величину, так и направление отклонений. Он сконструирован *только для открытых скважин* (скважин без труб). Он работает быстро и чрезвычайно аккуратно. Результаты находятся в распоряжении буровой партии уже через пять минут после извлечения инструмента из скважины.

Clinograph Syfo позволяет аккуратно контролировать отклонения во время производства буровых работ. Исследования ведутся аккуратно и легко без применения *опасных кислот*. Этим инструментом указываются на бумаге *быстро* и *очень дешево* ежедневные записи отклонений от вертикальной линии при бурении.

Полная литература об этих инструментах высылается нашей фирмой по запросу.

Sectional view of a Surwel Clinograph

Después del descubrimiento del primer pozo petrolífero, se han introducido numerosos perfeccionamientos importantes a la explotación del petróleo, y entre ellos, los aparatos de reconocimiento Sperry-Sun constituyen contribuciones de primer orden a esta industria.

Ofrecemos a la industria tres instrumentos: el clinógrafo Surwel, el clinógrafo H-K y el clinógrafo Syfo.

El clinógrafo giroscópico Surwel hace el reconocimiento o exploración de los pozos por medio de un procedimiento fotográfico, registrando la desviación vertical y la dirección de los pozos de toda profundidad. Es el único instrumento que no es afectado por la *tortuosidad* ni la *influencia magnética*, durante su función registradora. El Surwel registra automáticamente y el registro obtenido es permanente.

El clinógrafo magnético de dirección H-K da acusación simultánea, indica, al mismo tiempo, el grado y la dirección de las inclinaciones, por medio de un procedimiento fotográfico. Se construye para emplearse solamente en *pozos abiertos*. Es de un funcionamiento rápido de alta precisión, pues las observaciones registradas pasan al conocimiento de la cuadrilla de perforadores en el espacio de cinco minutos después de extraido el instrumento del orificio del pozo.

El clinógrafo Syfo permite controlar con suma precisión la inclinación durante las operaciones de perforación. Los ensayos se hacen toda facilidad y con toda la exactitud deseada, sin necesidad de emplear *ácidos dañinos o peligrosos*. Suministra con *rapidez y economía*, indicaciones diarias, trazadas sobre papel, sobre la desviación vertical durante la perforación.

A solicitud suministraremos a quien la pida información completa acerca de estos admirables instrumentos de precisión.

View of H-K Directional Magnetic Clinograph

Depuis le découverte du premier puits pétrolifère, il y a eu de nombreux perfectionnements importants dans l'exploitation du pétrole—parmi lesquels les appareils de prospection Sperry-Sun sont des contributions de tout premier ordre dans la branche.

Nous offrons à l'industrie trois instruments—le clinographe Surwel, le clinographe H-K et le clinographe Syfo.

Le clinographe gyroscopique Surwel fait la prospection du puits au moyen d'un procédé photographique et enregistre la déviation verticale et la direction du pits à toutes les profondeurs. C'est le seul instrument qui ne suit affecté ni par la *Tortuosité*, ni par *influence magnétique*, au cours de l'enregistrement. Le clinographe Surwel enregistre automatiquement et l'enregistrement obtenu est permanent.

Le clinographe de direction magnétique H-K enregistre en une lecture unique, à la fois le degré et la direction des inclinaisons, au moyen d'un procédé photographique. Il est construit pour emploi dans les *Puits Ouverts seulement*. Il est d'un fonctionnement rapide, d'une haute précision, puisque les observations enregistrées sont entre les mains de l'équipe de forage dans l'espace de cinq minutes, après que l'instrument a été sorti du trou de forage.

Le clinographe *Syfo* permet le contrôle précis de l'inclinaison au cours des opérations de forage. Les mesures se font ainsi facilement, avec toute la précision désirable, et sans l'emploi *d'acides d'un maniement dangereux*. Il fournit *rapidement* et *très économiquement* des indications journalières sur papier de la déviation verticale pendant le forage.

Nous tenons à la disposition de ceux qui la désire, notre complète documentation au sujet de ces instruments de précision.

Complete literature on these instruments can be supplied by our company upon request.

SPERRY-SUN WELL SURVEYING CO.

***Main Office*—1608 Walnut Street, Philadelphia, Pa.**

***Branch Service Offices*—Houston, Long Beach, Tulsa.**

BANKING HEADQUARTERS IN THE OIL CAPITAL OF THE WORLD

The First National Bank and Trust Company of Tulsa, in the heart of the Mid-Continent oil fields, is thoroughly conversant with every phase of the oil industry, is equipped to render specialized service to patrons in foreign countries. We execute payments, either with or without the delivery of documents, on the order of bank correspondents; we render collection services; issue our own foreign exchange (on behalf of the American Express Company); investigate and furnish credit reports on domestic firms; make settlements for importers and exporters; and through our Trust Department, offer complete fiduciary service, which includes the settling of estates, acquisition, management and disposal of properties. You are invited to make this bank your contact with the petroleum industry in the United States.

Коммерческий банк "First National Bank and Trust Company", находящийся в сердце нефтяных промыслов средних штатов и хорошо знакомый с каждой фазой нефтяной индустрии, предлагает иностранным клиентам свои специальные услуги. Мы производим платежи против предъявления документов или без таковых по распоряжению банков, состоящих нашими корреспондентами; мы коллектируем деньги; выписываем ордера в иностранной валюте (через American Express Co.); производим расследования и даем сведения о кредитоспособности местных фирм; заключаем соглашения для импортеров и экспортеров, а через наш Trust Department мы действуем как Ваши поверенные по водворению имуществ, приобретению таковых, управлению недвижимостями и по ликвидации их. Вы можете пользоваться этим банком для создания контакта с нефтяной промышленностью Соединенных Штатов.

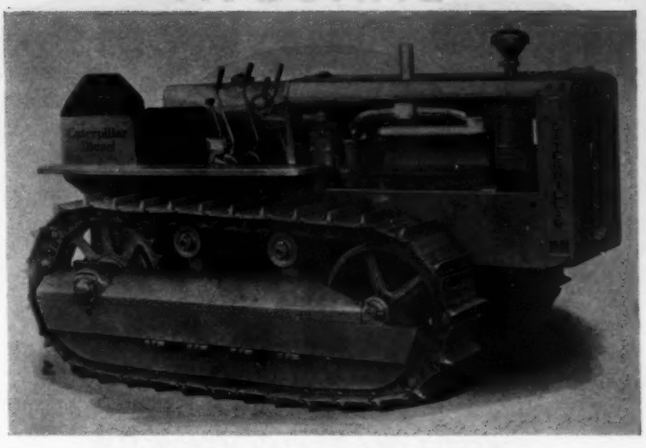
El First National Bank and Trust Company, banco comercial, en el corazón de los campos de petróleo del centro del continente, conoce perfectamente todas las fases de la industria del petróleo, está habilitado para prestar servicio especializado a los clientes de los países extrangeros. Hacemos pagos, con entrega o sin entregas de documentos, a la orden de los corresponsales del Banco; hacemos cobranzas; emitimos nuestras propias letras de cambio extrangero (por conducto del American Express Company); investiga y da informes de crédito de firmas del país; hace arreglos entre importadores y exportadores; y por nuestro Departamento Confidencial, ofrecemos servicio fiduciario completo, que incluye, liquidaciones de propiedades, adquisiciones, administración y disposición de propiedades. Invitamos a Ud. a que este banco le sirva de contacto con la industria del petróleo en los Estados Unidos.

La First National Bank and Trust Company, une banque commerciale, au coeur de la région centrale des puits pétrolifères américains, est très versée dans les phases diverses de l'industrie pétrolifère, et est à même de rendre des services spécialisés à ses clients résidant à l'étranger. Nous faisons des paiements, soit sur, soit sans la remise des documents, sur l'ordre de correspondants bancaires; nous effectuons les recouvrements; nous établissons nous-mêmes nos lettre de change étrangères (pour le compte de la American Express Company); nous faisons conduire des enquêtes et établissons des rapports sur le crédit de maisons nationales; nous effectuons des règlements pour le compte d'importateurs et d'exportateurs; et, par l'entremise de notre Service Confidentiel, nous offrons des services fiduciaires complets, qui comprennent les règlements de propriétés, d'acquisitions, de gérance et de vente de propriétés. Nous vous invitons à utiliser les services de cette banque pour prendre contact avec l'industrie du pétrole des Etats-Unis.

THE FIRST NATIONAL BANK and TRUST COMPANY OF TULSA

TULSA, OKLAHOMA, U.S.A.

"CATERPILLAR" LINE



Caterpillar Tractor Co. of Peoria, Illinois, builds a complete line of Tractors, Graders, Maintenance Machines and Power Units to serve practically every branch of the oil and pipe line industry. A wide range of models is offered and a choice of Diesel or spark ignition engines is available in several of the tractors and power units. The spark ignition power plants may be equipped to burn gasoline, tractor fuels, natural gas or butane.

Four sizes of Diesel tractors, the RD8, RD7, RD6 and RD4, have recently been announced, developing 95, 61, 45 and 35 drawbar horsepower, respectively. Spark ignition tractors are also offered in these power brackets, as well as a smaller tractor, the Twenty-Two, which is designed especially to operate on tractor fuels.

The road machinery line consists of blade graders to match the power of the various tractors, two elevating graders available with either engine or power take-off drive and maintenance machines which feature a line of three Auto Patrols, one of which is Diesel powered.

Power units for stationary, portable and semi-portable work are available in Diesel and spark ignition models in sizes ranging from 130 to 47 horsepower.

Фирма Caterpillar Tractor Co., Peoria, Illinois, строит Тракторы, Грэйдеры, Вспомогательные Машины и Силовые Установки разнообразных размеров для обслуживания фактически любых нужд нефтяных промыслов и трубопроводов. При большом разнообразии моделей некоторые тракторы и силовые установки, могут быть снабжены либо дизелями, либо двигателями внутреннего сгорания с зажиганием от искры. Силовые установки этого типа могут быть приспособлены для сжигания газолина, тракторного топлива, естественного газа и бутана.

В последнее время фирма выпустила дизельные тракторы четырех размеров, а именно RD8, RD7, RD6 и RD4, развивающих 95, 61, 45 и 35 лошадиных сил на тяговом крюке. Тракторы, снабженные двигателями внутреннего сгорания с зажиганием от искры, также изготовляются мощностью как указано выше, но, кроме того, имеется меньший трактор в 22 лошадиных сил, сконструированный специально для работы тракторным топливом.

Список дорожных машин, изготовляемых фирмой, включает грэйдеры с планкой всевозможных размеров соответствующих мощности тракторов; элеваторные грэйдеры с двигателями на них, или тягового типа и вспомогательные машины в виде трех типов Мотор-Патрулей, один из которых снабжен дизелем.

Силовые установки имеются стационарного, переносного и полупереносного типов с, дизелями или двигателями внутреннего сгорания с зажиганием от искры, мощностью от 130 до 47 лошадиных сил.

La Caterpillar Tractor Co. de Peoria, Illinois, fabrica un completo surtido de tractores, niveladoras, máquinas de mantenimiento y unidades de fuerza, para servir a casi toda ramificación de la industria del petróleo. Ofrece una amplia escala de modelos y en varios de sus tractores y unidades de fuerza da elección a motores diésel o de encendido por chispa. Los motores de encendido por chispa pueden equiparse para funcionar con gasolina, combustibles de tractor, gas natural o butano.

Recientemente ha anunciado cuatro tamaños de tractores con motores diésel: el RD8, el RD7, el RD6 y el RD4, que desarrollan respectivamente, en barra de tracción 95, 61, 45 y 35 c. de f. Ofrece también tractores con encendido por chispa de potencias similares, lo mismo que un modelo más pequeño, el Veintidós, el cual está proyectado especialmente para funcionar con combustibles de tractor.

La maquinaria de camino consta de niveladoras planas, que armonizan con la fuerza de los varios tractores, dos niveladoras de elevación ofrecidas con motor o con transmisión por tomafuerza y máquinas de mantenimiento o conservación, entre las cuales se incluye un surtido de tres Auto Patrols (Patrullas Automóviles) de las cuales una va provista de motor diésel.

Las unidades de fuerza, de tipos fijos, portátiles y semiportátiles, se ofrecen en modelos diésel y de encendido por chispa, en tamaños de 130 a 47 c. de f.

La Caterpillar Tractor Co. de Peoria, Illinois, construit une série complète de tracteurs, régaleuses, machines à entretenir les routes et groupes-force, desservant pour ainsi dire chaque branche de l'industrie du pétrole et des canalisations pétrolières. Il en est offert un vaste choix de modèles, et il est prévu, pour plusieurs des tracteurs et groupes-force, un choix de moteurs Diesel ou à allumage par étincelle. Les groupes-force à allumage par étincelle peuvent être équipés pour brûler l'essence, les carburants de tracteurs, le gaz naturel ou le butane.

Quatre grandeurs de tracteurs Diesel ont été récemment annoncées, à savoir RD8, RD7, RD6, et RD4, développant respectivement 95, 61, 45 et 35 chevaux à la barre d'attelage. Les tracteurs à allumage par étincelle sont aussi offerts pour ces régimes de puissance, ainsi qu'un plus petit modèle, le Vingt-Deux, qui a été étudié spécialement pour pouvoir employer les carburants de tracteurs.

La série des machines à entretenir les routes consiste de régaleuses à lames correspondant à la puissance des divers tracteurs, deux régaleuses élévatrices fournies soit avec moteur, soit avec prise de force motrice, et enfin des machines strictement d'entretien, notamment un groupe de trois véhicules-patrouilles automobiles, dont un muni d'un moteur Diesel.

Les groupes-force sont offerts en modèles Diesel et à allumage par étincelle, pour installations fixes, portatives et semi-portatives, et cela en grandeurs allant de 130 à 47 chevaux.

CATERPILLAR TRACTOR CO.

PEORIA, ILLINOIS, U.S.A.

DARCOVA

VALVE CUPS

HARD

(Orange Label)

THE ORIGINAL COMPOSITION CUP

Over thirty years ago Darling Valve & Manufacturing Co. made the first composition valve cup, and since that time Darcova Cups have earned an excellent reputation for performance under severe pumping conditions.

The manufacturers have been constantly improving these cups and this long experience coupled with the precision methods used today maintain Darcova Cups in their foremost position. They are readily recognized by the familiar orange label.

Two softer grades of cups are now made by the manufacturers of Darcova Cups for use where it is felt that softer cups will pump more efficiently.

Darval (Soft) Cups with the Blue Label are for depths to approximately 2,000 feet and Darflex (Extra Soft) Cups with the green label are for depths to approximately 800 feet.

All cups are rigidly inspected and are properly boxed for export shipment.

Фирма Darling Valve & Mfg. Company начала изготовлять клапанные манжеты из композиции более тридцати лет тому назад и с тех пор манжеты Darcova пользуются прекрасной репутацией для работы в тяжелых условиях откачки.

Фирма непрерывно улучшает качество этих манжет и ее долголетний опыт, а также современные точные методы изготовления, способствуют тому, что манжеты Darcova и по сегодняшний день занимают первенствующее положение. Их легко распознать по оранжевому клейму.

В настоящее время фирма изготовляет два более мягких сорта манжет Darcova, которые применяются при соответствующих условиях откачки.

Darval (мягкие) манжеты с синим клеймом употребляются для глубин примерно в 2000 фут., а Darflex (экстрамягкие) с зеленым клеймом — для глубин около 800 фут.

Все манжеты проходят строгую инспекцию и тщательно упаковываются для экспорта.

Hace más de treinta años la Darling Valve & Mfg. Company hizo la primera taza de composición para válvulas y desde entonces las Tazas Darcova han ganado reputación excelente por su funcionamiento en condiciones muy severas en que se emplean bombas.

Los fabricantes han estado constantemente perfeccionando estas tazas, y su larga experiencia unida a los métodos precisos que usan hoy día mantienen a las Tazas Darcova en su posición sobresaliente. Se reconocen fácilmente por su etiqueta de color anaranjado.

Los fabricantes de las Tezas Darcova hacen ahora dos tazas más suaves para los casos en que se cree que con tazas suaves las bombas funcionarán con mayor eficiencia.

Las Tazas Darval (suaves) con etiqueta azul son para profundidades aproximadamente de 2.000 pies, y las Darflex (extra suaves) con etiqueta verde, son para profundidades aproximadamente de 800 pies.

Todas las Tazas son rigidamente inspeccionadas y propiamente empacadas en cajas para la exportación.

Il y a déjà plus de trente ans que la Darling Valve & Mfg. Company a mis sur le marché la première cuvette de soupape en composition spéciale, et depuis lors, les cuvettes Darcova ont acquis une excellente réputation en ce qui concerne leur fonctionnement dans des conditions rigoureuses de pompage.

Les fabricants n'ont pas cessé de perfectionner ces cuvettes et cette longue expérience jointe aux méthodes de précision en usage actuellement conservent aux Cuvettes Darcova leur position d'élite. On les reconnaît facilement à l'étiquette orange bien connue.

Les fabricants des Cuvettes Darcova fabriquent maintenant deux qualités moins dures de cuvettes pour emploi dans les cas où il apparaît désirable de faire usage de cuvettes moins dures afin de réaliser un pompage plus efficace.

Les Cuvettes Darval (Douces) portant l'Etiquette Bleue, conviennent à des profondeurs ne dépassant pas 2000 pieds et les Cuvettes Darflex (Extra Douces) portant l'Etiquette Verte, conviennent à des profondeurs jusqu'à 800 pieds environ.

Toutes les cuvettes sont soumises à une inspection rigide et emballées dans des caisses appropriées pour l'exportation.

Write for literature and more details.

DARLING VALVE & MFG. COMPANY

WILLIAMSPORT, PA., U. S. A.

OCECO

TANK FITTINGS

Protect Against Fire and Evaporation

Stop losing money that escapes in the form of vapors when your storage tanks breathe. Control evaporation losses with OCECO Conservation Vent Valves.

Make it impossible for fire to get into your tanks. No gas-tight tank with the breather vent protected by an OCECO Flame Arrestor has ever been lost by fire.

Shown above is the OCECO Vent Unit with the Conservation Valve in combination with the Flame Arrestor.

Write for a catalog illustrating OCECO vent equipment and other tank fittings.

Остановите потерю денег, улетучивающихся в виде паров из ваших резервуаров для хранения нефти и нефтепродуктов. Прекратите эти потери установкой предохранительных вентиляционных клапанов OCECO.

Устраните возможность проникновения огня во внутрь ваших резервуаров. Ни один герметический резервуар, снабженный вентиляционным клапаном и уловителем пламени OCECO, не был до сего времени потерян от пожара.

Выше изображена вентиляционная установка OCECO, состоящая из предохранительного клапана в комбинации с уловителем пламени.

Требуйте каталог OCECO, в котором изображены вентиляционные приспособления и прочая резервуарная арматура.

Cese de perder dinero, que se escapa en la forma de vapores cuando los tanques de depósito respiran. Evite las pérdidas por evaporación mediante las válvulas de respiración OCECO Conservation.

Haga imposible que el fuego entre a sus tanques de almacenamiento. Hasta ahora, ningún tanque hermético al gas con respiradero protegido por el detenedor de llama OCECO se ha perdido a causa de incendio.

Arriba mostramos el grupo de respiradero OCECO con válvula de respiración Conservación en combinación con el detenedor de llama.

Pídanos catálogo ilustrado de los equipos de respiración OCECO y otros accesorios para tanques.

Evitez les pertes causées par l'échappement de vapeurs des réservoirs. Supprimez l'évaporation à l'aide des Events OCECO.

Ecartez tout danger d'incendie. Aucun réservoir étanche aux gaz, muni d'un pare-flamme OCECO à l'évent n'a jamais pris feu.

Ci-dessus: Event OCECO avec soupape de conservation et pare-flamme.

Demandez le catalogue illustré des appareils OCECO et autres dispositifs pour réservoirs.

THE JOHNSTON & JENNINGS CO.

Oceco Division

CLEVELAND, O., U.S.A.

877 Addison Rd.

RIDGID

RIDGID Pipe Wrench

Sizes 6" to 60". Guaranteed unbreakable housing. Full-floating hook jaw. Replaceable heel jaw. Easy turning adjustment nut in open housing. Powerful I-beam handle.

RIDGID Pipe Cutter

Thin tool-steel cutter blade gives 300% more cuts. Blade fits any RIDGID type cutter. Four sizes, ⅛" to 4" capacities. Guaranteed unbreakable housing.

RIDGID Pipe Threader

Threads 1" to 2" pipe with same set of chasers, true accurate threads. Chasers set to size mechanically. New type work-holder, quick adjustment to pipe. Light weight, strong.

ТРУБНЫЕ КЛЮЧИ RIGID

Размеры — 6" до 60". Гарантированный от излома корпус. Раздвигающаяся до конца крючкообразная челюсть. Сменная опорная челюсть. Легко-поворачиваемая установочная гайка, помещенная в открытом пазу. Прочная рукоятка двухтаврового сечения.

ТРУБОРЕЗКА RIGID

Тонкий режущий нож из инструментальной стали отрезывает на 300% больше труб. Этот нож можно применять с любой труборезкой типа RIGID. Имеются четыре размера труборезки для труб от ⅛" до 4". Корпус гарантирован от излома.

ТРУБНЫЙ КЛУП RIGID

Одним и тем же набором плашек можно нарезывать трубы от 1"до 2", причем резьба получается точной и аккуратной. Плашки механически устанавливаются по размеру трубы. Сильный инструмент при легком весе.

LAVE DE TUBO RIDGID

Tamaños: de 6" a 60". Cuerpo indestructible, garantizado. Mandibula de tipo completamente flotante. La mandibula inferior es de tipo reemplazable. Tuerca de fácil rotación para el ajuste, en el cuerpo abierto. Mango firme, en forma de viga de doble T.

CORTADOR DE TUBO RIDGID

Su delgada cuchilla de acero de herramienta da 300% más cortes. La cuchilla ajusta en cualquier cortador Ridgid. Cuatro tamaños, de ⅛" a 4". Cuerpo indestructible garantizado.

ROSCADOR DE TUBO RIDGID

Labra filete o rosca en tubo de 1" a 2" con el mismo juego de dados. Estos se ajustan a tamaño, mecánicamente. Nuevo tipo de sujetador y rápido ajuste al tubo. De peso liviano y muy firme.

CLEF A TUBES RIDGID

Grandeurs de 6" à 60". Garantie incassable. Machoire-crochet réglable. Machoire-talon remplacable. Ecrou de réglage se déplaçant facilement dans l'ouverture. Manche robuste en forme d'I.

COUPE-TUBES RIDGID

Le tranchant de ce coupe-tubes en acier produit 300% plus de coupures. Il s'adapte à tout modèle de Coupe-tubes RIDGID. Quatre grandeurs, capacités de ⅛" à 4" Cet instrument est garanti incassable.

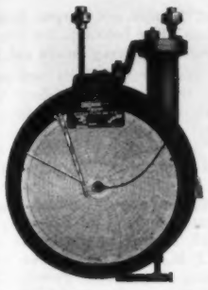
OUTIL A FILETER LES TUBES RIDGID

Filète des tubes de 1" à 2" au moyen du même jeu de filières à peigne; on obtien des filetages d'une très grande précision. Ajustement mécanique des filières à peigne. Nouveau modèle de porte-pièce, adaptation rapide au tube. Léger et robuste.

THE RIDGE TOOL COMPANY

ELYRIA, OHIO, U.S.A.

FOXBORO INSTRUMENTS MEET ALL PETROLEUM NEEDS



FOXBORO FLOW METER

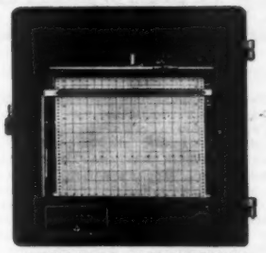
When ordering instruments, specify Foxboro and you will always get the instrument best suited to your needs. Our most complete stock contains Indicating, Recording and Controlling Instruments for Temperature, Pressure, Flow and Liquid Level.

Gas, Oil, Steam, Water, Acids or any other fluid can be measured accurately and economically with Foxboro Meters. They are obtainable for—low pressure, high pressure, medium pressure, wide range, large volumes and small volumes. You can get Indicating, Recording, Integrating and Combination Meters, Pressure Compensated Meters and Uniform Flow Scale Meters.

Foxboro Thermometers and Pyrometers furnish temperature records of all temperatures from —300° F. to 2,800° F. The new Recording Potentiometer Pyrometer can be had in either single pen or multiple record type.

Temperature, Pressure, Liquid Level and Flow are controlled most accurately with the STABILOG System of Automatic Control. It gives One Hundred Per Cent Automatic Control at all times and under any circumstances. In a continuous process, a complete installation of STABILOGS keeps the process in perfect balance at all times by preventing the development of any upsetting surges.

Petroleum producers and refiners throughout the world have found that it pays to specify FOXBORO.



FOXBORO RECORDING POTENTIOMETER PRYOMETER

При покупке инструментов выбирайте FOXBORO и вы всегда будете иметь инструменты наиболее пригодные для ваших нужд. Фирма изготовляет чрезвычайно комплектный набор инструментов, включая индикаторы, самозаписывающие и контрольные аппараты для температуры, для давления и для уровня жидкости.

Счетчиками FOXBORO можно точно и экономно измерять газы, нефтепродукты, воду, кислоты и проч. жидкости. Они изготовляются для низких, средних и высоких давлений, для больших и для малых количеств. Вы можете приобрести у нас индикаторные, самозаписывающие, интеграционные и комбинированные счетчики, а также компенсационные и юниформные самовзвешивающие счетчики.

Термометры и пирометры FOXBORO записывают температуру от 300° до 2800° по Фаренгейту. Новый самозаписывающий пирометр-потенциометр изготовляется как с одним пером, так и с несколькими перьями.

Температура, давление, уровень и объем контролируются чрезвычайно точно при помощи системы автоматического контроля. Этой системой достигается стопроцентный автоматический контроль в любое время и при любых условиях. При непрерывном процессе комплектная установка СТАБИЛОГОВ поддерживает этот процесс на всем его протяжении в абсолютном балансе и не допускает возникновения колебаний, растраивающих плавность процесса.

Нефтепромышленники и нефтеперегонщики всего мира считают установку инструментов FOXBORO наиболее целесообразной.

Al comprar instrumentos, especifíquense los de marca Foxboro y se obtendrá siempre lo más adecuado a los requisitos del caso. Nuestro completo surtido comprende instrumentos para indicar, registrar y regular la temperatura, las presiones y el nivel de los líquidos.

El gas, aceite, vapor, ácidos y otros líquidos pueden medirse con exactitud y economía con los instrumentos Foxboro. Se ofrecen para presión baja, presión alta, presión regular, cantidades grandes y cantidades pequeñas. Hay registradores de indicación, registro, integrales y de combinación, medidores compensados de presión y medidores de flujo de escala uniforme.

Los termómetros y pirómetros Foxboro suministran registros de temperatura desde 300 a 2800 grados Fahrenheit. El nuevo pirómetro registrador de potencialidad se ofrece en tipo de acusación sencilla y en tipo de registro múltiple.

La temperatura, la presión, el nivel y el flujo de los líquidos se gobiernan con exactitud máxima mediante el sistema de control automático STABILOG. Suministra un completo control automático en todo momento y bajo toda circunstancia. En un procedimiento continuo, una completa instalación de instrumentos STABILOG conserva toda la operación en perfecto equilibrio, durante todo el tiempo, evitando el desarrollo de toda variación trastornadora.

Los productores y refinadores de petróleo, en todas partes del mundo, han visto que resulta muy lucrativo el especificar siempre los instrumentos de marca Foxboro.

Quand vous commandez des instruments, exigez toujours la marque Foxboro, et vous serez ainsi certains de vous assurer les instruments les mieux appropriés à vos besoins. Notre assortiment, des plus complets, comprend des instruments indicateurs, enregistreurs et contrôleurs pour la température, la pression, l'écoulement et le niveau des liquides.

Au moyen des compteurs Foxboro, on peut mesurer économiquement et avec précision le gaz, le pétrole, la vapeur, l'eau, les acides, et tous autres fluides. On peut se les procurer pour —basse pressions, hautes pressions, pressions moyennes, grande portée, grands volumes et volumes réduits. Vous pouvez vous procurer des compteurs indicateurs, enregistreurs, intégrateurs et des modèles combinés, aussi des compteurs de pression à compensation et des compteurs à échelle pour uniformité d'écoulement.

Les thremomètres et les pyrométres Foxboro permettent d'enregistrer des températures allant de 300° F. a 2800° F. Le nouveau pyrométrepontentionètre du type enregistreur peut se fournir soit en modèle à plume unique, soit en modèle à enrigestrement multiple.

Les températures, les pressions, le niveau et l'écoulement des liquides se contrôlent avec une précision rigoureuse au moyen du Système STABILOG de contrôle automatique. Ce système assure un contrôle entièrement automatique à tout moment et dans toutes les conditions. En marche continueé une installation complète d'instruments STABILOG assure un équilibre parfait au procédé, d'un bout a l'autre de l'opération, en empêchant la production de fluctuations disturbatrices.

Les producteurs et raffineurs, dans le monde entier, ont appris par l'expérience que "ça paye" d'exiger la marque FOXBORO.

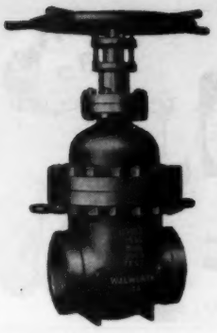
THE FOXBORO COMPANY

Neponset Avenue, Foxboro, Mass., U.S.A.

DISTRIBUTORS THROUGHOUT THE WORLD

Cable Address: "FOXCO-FOXBORO"

COMPLETE PETROLEUM INSTRUMENT SERVICE



WALWORTH
Steel Drill Gate Valve

WALWORTH
Steel Valve for Refineries

WALWORTH VALVES AND FITTINGS

The Walworth Company have been manufacturing Valves, Pipe Fittings and Tools for ninety-two years, and have specialized in these products for the Petroleum industry. Walworth products include Drill Gate Valves, Flow Line Valves and corresponding Fittings for oil well hook-ups; also Steel, Iron and Brass Valves and Pipe Fittings for refinery use; as well as Lubricated Plug Valves; and a Pipe Wrench, known as the Walco Pipe Wrench, which is the simplest and strongest pipe wrench made.

The Walworth Company have large manufacturing capacity in five plants; and also have a subsidiary, known as the Walworth International Company, 19 Rector Street, New York City, which handles all foreign transactions exclusively, with Sales Offices in the principal cities in the world.

Фирма Walworth в течение 91 года изготовляет задвижки, трубопроводную арматуру и инструменты, и специализировалась на этих продуктах, применяемых для нужды нефтяной промышленности. Фирма Walworth производит следующие предметы: бурильные задвижки, задвижки для отводных линий и соответствующую им арматуру для контрольных установок на скважинах; кроме того, фирма выпускает стальные, чугунные и медные задвижки и арматуру для нефтеперегонных заводов, а также самосмазывающиеся клапаны с пробкой и ключи для труб, известные под названием Walworth. Эти ключи являются самыми простыми и самыми прочными из всех, имеющихся на рынке. Фирма Walworth имеет пять собственных заводов, а также контролирует фирму Walworth International Company, 19 Rector St., New York City, которая ведает исключительно заграничными поставками и имеет отделения во всех крупных городах мира.

La Walworth Company ha estado fabricando válvulas, avíos para tuberías y herramientas desde hace noventa y un años, y se ha especializado en esos productos para la industria del petróleo. Los productos Walworth incluyen, válvulas de Compuerta para Perforadoras, Válvulas de flujo para tuberías y los avíos correspondientes para conexiones de pozos de petróleo; tambien válvulas de acero, hierro y latón, y avíos de tubos para uso en las refinerías; tambien válvulas de tapón para lubricación; y llaves de tubos, conocidas con el nombre le Llaves Walco para Tubos, que son las llaves más sencillas y fuertes que hay.

La Walworth Company tiene gran capacidad manufacturera en cinco instalaciones y tiene tambien una subsidiaria conocida con el nombre de la Walworth International Company, en el 19 Rector Street, New York City, la que maneja todas las transaciones extrangeras exclusivamente, con Oficina de Ventas en las cuidades principales del mundo.

La Walworth Company fabrique des soupapes, des raccords et garnitures de tuyaux et des outils depuis quatre-vingt-onze ans, et se fait une spécialité de ces articles pour l'industrie pétrolière. Les articles Walworth comprennent des vannes de sondes, des vannes pour conduites de passage et les garnitures correspondantes pour l'agencement des puits de pétrole; ils comprennent aussi des soupapes en acier, en fer et en laiton et des garintures de soupapes pour les raffineries; ainsi que des soupapes de fermeture à graissage et une clé à tube, la clé à tube Walco, la plus simple et la plus robuste qui soit.

La Walworth Company dispose de cinq usines d'une grande capacité de production. Sa filiale, la Walworth International Company, 19 Rector Street, New York, est exclusivement chargée des affaires à l'étranger. La Walworth Company a des bureaux de vente dans les villes principale du monde entier.

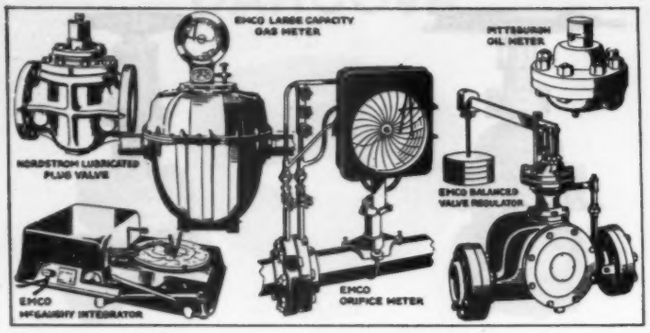
Write for catalog which fully describes our complete line of valves.

WALWORTH INTERNATIONAL CO.

19 Rector Street

NEW YORK, N. Y., U.S.A.

Cable Address: **Walintco**



PITTSBURGH EQUITABLE HAS COMPLETE LINE OF METERS

The Pittsburgh Equitable Meter Company builds the largest and most complete line of meters and regulators in the world for the measurement and control of gas, petroleum and water. They have also developed many auxiliary products for those industries which enable users to make substantial reductions in operating expenses and reduce losses in transmission and distribution systems.

Nordstrom Lubricated Plug Valves have been installed by gas and petroleum companies in every country of the world. The efficiency in operation, in that they always open and close easily; the fact that they give a positive shut off at all times; and their exceptional long service are advantages which should be carefully considered before valve purchases are made.

The products illustrated above are fully described in our catalogs which will be sent to engineers and buyers interested.

Фирма Pittsburgh Equitable Meter Company изготовляет самую большую и комплектную в мире серию счетчиков и регуляторов для измерения и контроля газа, нефти и воды. Эта фирма также разработала много вспомогательных аппаратов для газа, нефти и воды, которые дают возможность значительно со кратить оперативные расходы и уменьшить потери в транспортных и распределительных системах.

Клапаны Nordstrom с пробкой и смазкой устанавливаются газовыми и нефтяными фирмами во всех странах света. Продуктивность их работы заключается в том, что они всегда легко открываются и закрываются; всегда дают надежный и полный затвор; имеют исключительно продолжительный срок службы. Эти качества должны быть приняты во внимание при выборе и покупке клапанов.

Инструменты изображенные выше, подробно описаны в наших каталогах, которые высылаются нами инженерам и заинтересованным покупателям.

La Pittsburgh Equitable Meter Company construye el surtido más grande y completo del mundo de cortadores y reguladores para medir y gobernar petróleo y agua. Tambien construyen muchos productos auxiliares para esas industrias, quepermiten a quienes las usan, hacer reducciones considerables en los gastos de explotación y reducir pérdidas en los sistemas de transmisión y distdibución.

Las válvulas Nordstrom de Tapón Lubricado han sido instaladas por las compañías de gas y petróleo en todos los países del mundo. La eficacia en el trabajo; su acción de abrirse y cerrarse fácilmente; el hecho de que en todo tiempo interrumpen aficazmente; y su largo servicio exepcional, son ventajas que debieran considerarse antes de comprar válvulas.

Los productos que se ven arriba están completamente descritos en nuestros catálogos que serán enviados a los ingenieros y compradores interesados.

La Pittsburgh Equitable Meter Company fabrique l'assortiment le plus vaste et le plus complet de compteurs et de dispositifs de réglage, du monde entier, pour mesurer et régler le gaz, le pétrole et l'eau. Cette compagnie a créé de nombreaux articles auxilaires, pour ces industries, qui permettent à ceux qui les emploient de réaliser d'importantes économies dans leurs frais de fonctionnement et de réduire les pertes subies dans les systèmes de distribution et de transmission.

Les soupapes de fermeture à graissage Nordstrom sont posées par les compagnies de gaz et de pétrole dans tous les pays du monde. Leur efficacité de fonctionnement, du fait qu'elles s'ouvrent et se ferment toujours avec facilité; le fait qu'elles assurent une fermeture positive en tout temps; et l'usage exceptionnellement long qu'elles font constituent des avantages qu'il convient de prendre sérieusement en considération avant de faire aucun achat de soupapes.

Les articles représentés ci-dessus sont l'objet d'une description complète dans nos catalogues que nous nous ferons un plaisir d'adresser aux ingénieurs et acheteurs susceptibles de s'y intéresser.

PITTSBURGH EQUITABLE METER COMPANY

MERCO NORDSTROM VALVE COMPANY

PITTSBURGH, PENNA., U.S.A.

Representatives: **South & Central America—Meters and Valves. The Armco International Corp., Calle Reconquista, 336, Buenos Aires, Argentina.**

Representatives and Licensees: **Canada & Newfoundland—Meters and Valves. Peacock Bros., Ltd., University Tower Building, Montreal.**

Representatives and Licensees: **Europe, Africa, Australia, Southern Asia—Merco Nordstrom Valves. Audley Engineering Corporation, Newport, Shropshire, England.**

IDEAL-AJAX TWIN CYLINDER DRILLING STEAM ENGINES

Ideal-Ajax Twin Cylinder Steam Engines are of very rugged construction, designed especially for oil field use. The 12x12 Engine embodies the latest type of design. The crankshaft is mounted in Heavy Roller Bearings. The Main Frame is cast in one piece insuring rigidity and alingment of all moving parts. All running parts are enclosed in a cast iron case oil tight and excluding dirt. This Engine is made in either Piston Valve or Slide Valve Type. The Piston Valve is designed especially for use with high pressure superheated steam. Steam separators with automatic trap are also furnished.

Only the highest grade material is used in the manufacture of the Ideal-Ajax Engines. All wearing parts are carefully machined and ground to precision dimensions. The Crank Shafts are alloy steel forgings and heat treated. Connecting Rods and Straps are forged from alloy steel billets. The bearings for the Crank and Crosshead Bearing Boxes are Bronze.

These engines are fully equipped including a Balanced Double Seat Throttle Valve, Force Feed Lubricator, Drain Cocks for Cylinders and Drop Forged Machine Wrenches. Copper asbestos gaskets are supplied for all steam connections.

All Engines are assembled and thoroughly tested under load before shipment. The 12x12 Engine operating at a speed of 250 R.P.M. and with 250 lbs. of steam will develop 430 Horse Power. The net weight of this engine is 14,300 lbs. and boxed for export 16,060 lbs.

14x14 engines of same type, the largest in the world for oil field drilling, can be furnished as well as 10x10, 11x11 and 12x12 in semi-closed plain bearing type.

Двухцилиндровые паровые машины Ideal-Ajax отличаются чрезвычайной прочностью и сконструированы специально для работ на нефтяных промыслах. Паровая машина 12x12, изображенная выше, представляет собою машину новейшей конструкции. Коленчатый вал работает в тяжелых роликовых подшипниках. Главная рама отлита из одного куска, что обеспечивает прочность машины и правильность взаимного расположения всех движущихся частей. Все движущиеся части заключены в закрытой чугунной коробке, не пропускающей масла, и защищены от грязи. Эти паровые машины изготовляются как с цилиндрическими, так и с плоскими золотниками. Цилиндрические золотники применяются исключительно для работы перегретым паром высокого давления. Машина снабжена сепаратором для пара с автоматическим трапом.

Паровые машины Ideal-Ajax изготовляются из материалов только самого высокого качества. Во набежание износа все рабочие части машины тщательно обработаны и отшлифованы по чрезвычайно точных размеров. Коленчатые валы откованы из стали специального сплава и термически обработаны. Шатуны и их серьги откованы из стальных болванок специального сплава. Подшипники коленчатого вала и крейцкопфа сделаны из бронзы.

Эти машины поставляются вполне оборудованными, включая отбалансированный дроссельный клапан с двойным седлом, лубрикатор с принудительной подачей масла, спускные краны для цилиндров и кованные гаечные ключи. Все паровые соединения снабжены прокладками из азбеста и меди.

Все паровые машины, перед их отправкой, собираются и всесторонне испытываются под нагрузкой. Машина 12x12 работает при 250 оборотах в минуту, при давлении пара в 250 англо-фунтов и развивает 430 лош. сил. Чистый вес этой машины составляет 14.300 англо-фунтов, а в экспортной упаковке 16.060 англо-фунтов.

Фирма также изготовляет паровые машины этого же типа размером 14x14, которые являются самыми большими в мире из применяемых для бурения нефтяных скважин. Кроме того, фирма изготовляет паровые машины 10x10, 11x11 и 12x12 полузакрытого типа с простыми подшипниками.

Los motores de vapor Ideal-Ajax de cilindros gemelos son de construcción muy firme y se proyectan especialmente para servicio en campos petrolíferos. El motor de 12 x 12 que mostramos en la vista superior comprende los más recientes perfeccionamientos en proyecto. El cigüeñal está montado en grandes cojinetes de rodillos. El bastidor principal es fundido en una sola pieza, lo que asegura rigidez y correcta alineación a todas las piezas móviles. Todos los organos de movimiento están protegidos en caja de hierro fundido, hermética al aceite y polvo. Este motor se ofrece en tipo de válvula de émbolo y en tipo de válvula corrediza. El modelo de válvula de émbolo se proyecta especialmente para utilizarse con vapor sobrecalentado de alta presión. Se suministran también separadores de vapor provistos de trampas automáticas.

En la fabricación de los motores Ideal-Ajax se emplean únicamente los materiales de más fina calidad. Todas las piezas expuestas a desgaste se labran cuidadosamente a máquina, esmerilándose a tamaños exactos. Los sigüeñales son de especial aleación de acero, forjados a martinete y tratados por procedimientos técnicos a propósito. Las bielas y otras piezas interiores se forjan de especial aleación de acero. Los cojinetes para el cigüeñal y las cajas del cojinete de la cruceta son de bronce.

Estos motores se suministran con un equipo completo, que comprende válvula abastecedora de doble asiento equilibrado, lubricador de alimentación bajo presión, grifos de evacuación para los cilindros y llaves de máquinas de acero estampado. Para todas las conexiones de vapor se suministran empaquetaduras de amianto y cobre.

Todos los motores se arman y ensayan prolijamente, bajo carga, antes de su embarque. El motor de 12 x 12 funcionando a una velocidad de 250 r.p.m. y con 250 libras de vapor, desarrolla 430 caballos de fuerza. El peso neto de este motor es 14.300 libras y embalado para la exportación, 16.060 libras.

Los motores de 14 x 14 del mismo tipo, los más grandes del mundo para servicio de perforación en campos petrolíferos, pueden suministrarse, lo mismo que sus compañeros de 10 x 10, 11 x 11 y 12 x 12, en tipo de cojinete semi cerrado.

Les Moteurs à Vapeur "Ideal-Ajax" à Cylindres Jumelés sont d'une construction des plus robustes, étudiés spécialement en vue de l'emploi sur les champs de pétrole. Le moteur 12 x 12, représenté sur l'illustration ci-contre, est du tout dernier modèle. Le vilebrequin en est monté sur de forts coussinets du type à rouleau. Le bâti principal est coulé d'une seule pièce, ce qui assure la rigidité et l'alignement convenables à tous les organes mobiles. Toutes les pièces mobiles sont enfermées dans un carter en fonte, absolument étanche au pétrole et à l'abri de la poussière. Ce moteur se fabrique soit du type à soupape à piston, soit du type à soupape à fourreau. Le modèle à soupape à piston a été étudié et construit spécialement pour emploi avec vapeur surchauffée à haute pression. Il est fourni également des séparateurs de vapeur qui possèdent un purgeur automatique d'eau de condensation.

On emploie, à la fabrication des moteurs Ideal-Ajax, exclusivement du matériel de qualité extra-supérieure. Toutes les pièces de frottement sont usinées avec le plus grand soin et meulées rigoureusement à la cote. Les vilebrequins sont des pièces forgées en alliage d'acier, qui ont été soumises à un traitement thermique. Les bielles et les brides sont aussi forgées à partir de billots en acier spécial. Les coussinets des cages de vilebrequin et de paliers à croisillon sont en bronze.

Ces moteurs sont équipés au complet, y compris avec soupape à papillon équilibrée à siège double, lubrificateur à alimentation sous pression, robinets de vidange pour cylindres et clefs de machine estampées. Des joints en cuivre et asbestos sont fournis pour tous les raccords à vapeur.

Tous les moteurs sont assemblés et soumis à des essais rigoureux sous charge avant d'être expédiés. Le moteur 12 x 12, qui fonctionne à une vitesse de 250 tours à la minute et avec 250 lbs. de vapeur, développera 430 chevaux vapeur. Le poids net de ce moteur est de 14.300 et, une fois mis en caisse, son poids total pour l'exportation est de 16.060 lbs.

Il est aussi offert des moteurs 14 x 14 du même type, les plus grands modèles du monde pour le forage d'exploitation pétrolifére, ainsi que des moteurs 10 x 10, 11 x 11 et 12 x 12 du type à palier semi-enfermé.

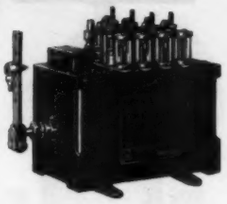
AJAX IRON WORKS

CORRY, PA., U.S.A.

Distributed by

THE NATIONAL SUPPLY COMPANIES

McCORD "LD" LUBRICATORS



Standard Lubricator of the Oil Field

An important and exclusive feature of McCord "LD" lubricators is that every drop of oil passing through the sight feed is delivered to the point of lubrication, showing at all times that the lubricator is functioning properly. Adjustment for amount of oil delivered is easily made without use of tools and once made is not affected by changes in temperature. The same quantity of oil is delivered, regardless of temperature, whether it be a light body or a heavy body cylinder oil. Any pump unit is readily removable without stopping the lubricator or disturbing other pump units. All parts are brass or steel, drop forging accurately machined and interchangeable. Every McCord lubricator is tested against 2,000 lbs. pressure. Sizes from one quart to four gallon capacity. Catalog and prices on request.

Важное и исключительное преимущество лубрикаторов McCORD "LD" заключается в том, что каждая капля масла, подаваемая к месту смазки, проходит мимо смотрового глазка, благодаря чему можно в любой момент убедиться в том, что лубрикатор работает правильно. Регулировка количества подаваемого масла производится быстро и без каких-либо инструментов, причем после отрегулировки на нее не действуют перемены температуры. Лубрикатор, независимо от температуры, подает то же количество масла, будь это легкое или тяжелое цилиндровое масло. Любой из насосов может быть убран без остановки лубрикатора и без какого-либо осложнения для других насосов. Все части лубрикатора взаимозаменяемы и сделаны на меди или стали; они отколаны и тщательно обработаны. Каждый лубрикатор McCORD испытывается давлением в 2000 англо-фунтов. Он изготовляется размером от кварты до четырех галлонов. Каталоги и цены высылаются по запросу.

Una importante y exclusiva característica de los lubricadores McCord "LD" reside en el hecho de que cada gota aceite que pasa por el dispositivo de alimentación provisto de mirilla, se deposita en el mismo punto de lubricación, lo que permite contar, en todo momento, con la seguridad de que el lubricador está funcionando bien. La regulación de la calidad del aceite suministrado al mecanismo se hace fácilmente sin exigir el empleo de aditamientos, y una vez hecha esta regulación, no es alterada por los cambios de temperatura. La misma cantidad de aceite se suministra siempre, sea cual fuera la temperatura, y ya se trade de un aceite fluído o de un aceite espeso, para cilindros. Se puede desmontar fácilmente el completo grupo de la bomba, sin tener que paralizar el lubricador y sin desarreglar los otros grupos de bombas. Todas las piezas son de latón o de acero, con las forjadas a martinete muy bien labradas a máquina. Además, las piezas son intercambiables. Todos los lubricadores McCord se prueben bajo una presión de 2000 libras. Se ofrecen en modelos con capacidades que varían de un cuarto de galón a cuatro galones. Sírvase pedir catálogo general y precios.

Une importante et exclusive caractéristique des lubrificateurs McCord "LD" réside dans le fait que chaque goutte h'huile qui passe à travers le dispositif d'alimentation à viseur, est déposée au point même de lubrification, permettant de s'assurer à tout moment que le lubrificateur fonctionne bien. Le réglage de la quantité d'huile fournie au mécanisme se fait facilement sans exiger l'emploi d'aucun outil, et une fois ce réglage fait, il n'est nullement affecté par les changements de température. La même quantité d'huile est fournie, quelle que soit la température, qu'il s'agisse d'une huile fluide ou, au contraire, d'une huile lourde, pour cylindres. On peut facilement démonter tout groupe de pompe, sans devoir arrêter le lubrificateur et sans déranger les autres groupes-pompes. Toutes lespièces en sont en laiton ou en acier, embouties et usinées avec la plus grande précision; en outre, elles sont interchangeables. Tous les lubrificateurs McCord sont éprouvées sous une pression de 2.000 livres. Il en est offert des modèles de capacité variant de un quart à quatre gallons. On peut obtenir catalogue et prix sur demande.

McCORD RADIATOR & MFG. CO.
Lubrication Division
DETROIT
MICHIGAN, U.S.A.

FISHING TOOLS

. Because of the heavy investment that a well represents the recovery of the "fish" is of the utmost importance. Dependability should be the paramount requirement of a fishing tool and no tool should be run unless it is made by a reputable manufacturer.

Starting over 25 years ago to develop and better the design of Fishing Tools the Bowen Company has gained a reputation as purveyors of high grade oil tools. Sound engineering principles plua highest quality workmanship and good service have established Bowen Fishing Tools as the best that money can buy.

Ввиду того, что в каждую нефтяную скважину вкладывается большой капитал, вопрос успешного производства ловильных работ становится чрезвычайно важным. Надежность ловильных инструментов является основным вопросом и ни один ловильный инструмент не должен быть спущен в скважину, если он не изготовлен фабрикантом, имеющим первоклассую репутацию.

Фирма Bowen Company начала более 25-ти лет тому назад работы по производству и постоянному улучшению ловильных инструментов и имеет репутацию поставщика наиболее высококачественных инструментов для нефтяных промыслов. Солидные технические принципы, чрезвычайно высококачественная обработка и хорошо поставленное обслуживание клиентов, создало ловильным инструментам Bowen репутацию наилучших инструментов, какие только можно купить за деньги.

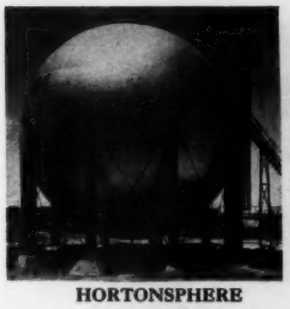
En vista de la gran inversión que representa un pozo, la recuperación de la herramienta pescadora es de suma importancia. La seguridad debe siempre ser el requisito principal de toda herramienta de pescar y nunca debe emplearse una que no sea construída por un fabricante digno de confianza.

Empezando hace más de 25 años a construir y perfeccionar herramientas de pescar, la compañía Bowen se ha hecho de envidiable reputación como suministradora de finas herramientas para la explotación del petróleo. Acertados principios científicos más excelente construcción y buen servicio han establecido sobre sólida base la reputación de las herramientas pescadoras Bowen como las mejores de su clase.

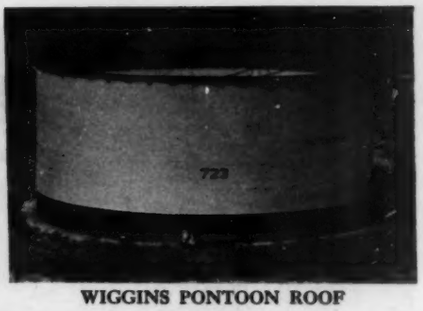
Etant donnée la mise de fonds importante qu'un puits pétrolier représente, le "repêchage" est une opération d'une importance capitale. Ce qu'on attend donc avant tout d'un outil de repêchage c'est un fonctionnement sans défaillance, et on ne devrait faire usage que d'outils fabriqués par des maisons de réputation établie.

Depuis plus de 25 ans, la Bowen Company met au point et perfectionne les outils de repêchage, et s'est acquis une réputation sans égale comme constructeurs d'outils pétroliers de qualité supérieure. Des principes mécaniques rationnels, joints à une main-d'oeuvre soignée et un service irréprochable, font partout reconnaître les outils de repêchage Bowen comme les meilleurs en leur genre sur le marché.

S. R. BOWEN CO.
Huntington Beach, Calif., U.S.A.
Export Office:
30 Rockefeller Plaza, New York City



HORTONSPHERE



WIGGINS PONTOON ROOF

TANKS THAT STOP EVAPORATION LOSSES

The Wiggins Pontoon Roof provides effective protection against evaporation losses on working storage tanks handling crude oil, gasoline and other oil products. This roof floats directly on the surface of the liquid at all levels, eliminating the vapor space within the tank and stopping breathing and filling losses. It can be installed on old and new tanks.

The Wiggins Breather Roof prevents evaporation loss from similar oil products held in standing storage tanks. The steel diaphragm roof flexes up and down allowing the all-vapor mixture in the tank to expand without being forced out of the tank and to contract without drawing in fresh air. Breather Roofs can be installed on existing tanks as well as on new tanks.

Hortonspheroids and Hortonspheres prevent evaporation loss from volatile gasolines and other light oils by storing them under pressure. Instead of allowing vapor to escape, it is held inside the tank and allowed to build up to the gauge pressure for which the tank is designed.

Hortonspheroids are ordinarily built from 5,000 to 80,000 bbl. capacity and for pressures from 1 to 20 lbs. per sq. in.

The Hortonsphere is built in sizes of 5,000, 7,500, 10,000 bbl. capacity. It is the economical way to store liquid or gas at pressures of 20 lbs. per sq. inch and up.

Понтонные крыши Wiggins основательно защищают резервуары для хранения нефти, газолина и других нефтепродуктов, от потерь, происходящих от улетучивания паров. Эти крыши плавают непосредственно на поверхности жидкости при любой ее высоте и, таким образом, устраняют пространство внутри резервуара, где могли-бы собираться испарения и также исключают возможность вибрации крыши от изменения давлений и связанных с этим потерь емкости реаервуара. Они могут быть установлены на старых и на новых резервуарах.

Крыша Wiggins диафрагмового типа предотвращает улетучивание паров из резервуаров, предназначенных для хранения нефти и нефтепродуктов. Стальная диафрагмовая крыша выгибается вверх и вниз, давая возможность смеси паров расширяться, но не улетучиваться из резервуара, или сжиматься без пропуска наружного воздуха в резервуар. Диафрагмовые крыши могут быть установлены на существующих или на новых резервуарах.

Сфероидальные и сферические резервуары Horton предохраняют потери от испарений летучих газолинов и других легких нефтепродуктов, которые хранятся в них под давлением. Вместо того, чтобы давать возможность парам улетучиваться, они сохраняются внутри резервуаров, повышая давление в нем до тех пределов, до каких резервуар был сконструирован.

Сфероидальные резервуары Horton строятся емкостью от 5.000 до 80.000 баррелей и для давлений от 1 до 20 англо-фунтов на кв. дюйм.

Сферические резервуары Horton, — вполне шаровидные — строятся стандартной емкостью в 5000, 7500 и 10000 баррелей. В них экономно хранить жидкости или газы под давлением в 20 англо-фунтов на кв. дюйм и выше.

Литература высылается по требованию.

El techo flotante Wiggins provee efectiva protección contra las pédidas por evaporación en los tanques de depósito de petróleo crudo, gasolina y otros productos petrolíferos. Este techo flota directamente encima de la superficie del líquido en todo nivel, eliminando el espacio de vapor dentro del tanque y suprimiendo, por lo tanto, las pédidas por respiración o evaporación. Puede instalarse en tanques viejos y nuevos.

El techo respirador Wiggins evita la pérdida por evaporación de similares productos petrolíferos depositados en tanques verticales. El techo de diafragma de acero se flexiona para arriba y para abajo, permitiendo que toda la mezcla de vapor en el tanque se dilate sin escaparse del tanque y se contraiga sin aspiración de aire. Los techos respiradores pueden instalarse en los tanques existentes lo mismo que en tanques nuevos.

El Hortonspheroid y el Hortonsphere se emplean para evitar la pérdida por evaporación de gasolinas volátiles y de otros similares productos de petróleo, depositando estos líquidos bajo presión. En lugar de permitir que el vapor se escape, éste se retiene dentro del tanque y se le permite aquí desarrollar presión hasta el valor máximo del manómetro del tanque.

El Hortonspheroid se construye ordinariamente en capacidades de 5.000 a 80.000 barriles, con presiones de 1 a 20 libras por pulgada quadrada.

El Hortorsphere—una verdadera esfera —se construye en tamaños corrientes, en capacidades de 5.000, 7.500 y 10.000 barriles. Es el método económico de almacenar líquido o gas a presiones de 20 libras por pulgada cuadrada y más.

Información detallada a solicitud.

Le toit ponton Wiggins assure une protection efficace contre les pertes par évaporation sur les réservoirs d'emmagasinement en service contenant le pétrole brut, l'essence et autres produits pétroliers. Ce toit flotte directement à la surface du liquide à tous les niveaux, ce qui élimine l'espace de vapeurs à l'intérieur du réservoir et supprime les pertes dues au reniflement et au remplissage. On peut en faire l'installation sur des réservoirs neufs ou usagés.

Le toit reniflard Wiggins supprime les pertes d'évaporation pour les produits pétroliers similaires logés dans des réservoirs d'emmagasinement fixes. Le toit au diaphragme d'acier se déplace verticalement par simple flexion, ce qui permet au mélange des diverses vapeurs à l'intérieur du réservoir de se dilater sans devoir s'échapper du réservoir et de se contracter sans faire un appel d'air frais du dehors. Les toits reniflards peuvent s'installer sur des réservoirs déjà en service, ou tout aussi bien sur des réservoirs neufs.

Les Hortonspheroids et les Hortonspheres sont employées afin de prévenir les pertes d'évaporaiton d'essences volatiles et autres huiles légères, en les emmagasinant sous pression. Au lieu de laisser les vapeurs s'échapper, elles sont maintenues à l'intérieur du réservoir et on les laisse développer la pression manométrique pour laquelle le réservoir a été prévu.

Les Hortonspheroids sont construits normalement en grandeurs de capacités allant de 5.000 à 80.000 barils, et pour des pressions allant de 1 à 20 lbs. au pouce carré.

L'Hortonsphere—une pure sphère—est construite en grandeurs normales de capacités de 5.000, 7.500 et 10.000 barils. Il offre le moyen économique par excellence de conserver liquides ou gaz sous des pressions de 20 lbs. au pouce carré et au-dessus.

Documentation fournie sur demande.

CHICAGO BRIDGE & IRON WORKS
2128 Old Colony Building - - CHICAGO, ILLINOIS, U.S.A.

To meet the demand for high heat transfer rates in oil heating for distillation and cracking units, Lummus has designed a distinctly new type of oil heater.

Placed in operation two years ago the first of these Lummus oil heaters is running on a topping operation in parallel with a conventional heater of modern design. The same crude, heated from and to the same temperatures, is being charged to both heaters. At the same efficiency, the capacity per square foot of heating surface of the Lummus Heater is 200% that of the conventional heater. Yet, under the same conditions, the maximum absorption rate of any of the heating surface in the Lummus Heater is lower than the maximum absorption rate in the conventional design of heater.

Another Lummus heater has been in operation for nine months in oil cracking service; a third has recently been installed for the same service; three more are under construction. For complete details of Lummus Oil Heater, write for Bulletin B-1.

Фирма LUMMUS сконструировала совершенно новый тип трубчатой печи, отвечающей нуждам нефтеперегонных и крекинговых установок, в которых при нагреве нефти, требуется высокий коэфициент теплопередачи.

Первая такая трубчатка LUMMUS, пущенная в ход два года тому назад, работает на нефтеперегонной установке параллельно с трубчатой печью новейшей конструкции. В обе трубчатки подается та же самая нефть, при одинаковой температуре. В них она нагревается до одной и той же температуры. При той же самой работе каждый квадратный фут поверхности нагрева трубчатки LUMMUS дает мощность в 200% по сравнению с максимальной мощностью в другой трубчатке. В то же самое время и при тех же самых условиях, максимальная абсорбционная способность в любом месте поверхности нагрева печи LUMMUS меньшая, чем у другой трубчатки.

Вторая трубчатка LUMMUS работает втечение девяти месяцев на крекинговой установке; третья печь недавно установлена для такой же работы; три новых трубчатки строятся в настоящее время.

Требуйте бюллетень B-1 с полными детальными сведениями о трубчатых печах LUMMUS.

Para satisfacer le demanda de un alto régimen de transferencia de calor, para el calentamiento de petróleo, en conexión con los procedimientos de destilación, la Lummus ha proyectado y construido un tipo completamente distinto de calentador de petróleo.

Puesto a funcionar hace dos años, el primero de estos calentadores, de petróleo Lummus está trabajando continuamente al lado de un calentador moderno de tipo corriente. El mismo petróleo crudo, calentado a iguales temperaturas, pasa por ambos calentadores. Sobre igual base de abastecimiento, la capacidad por pie cuadrado de superficie de calentamiento del calentador Lummus es 200% mayor que la del calentador de tipo ordinario. Sin embargo, bajo idénticas condiciones, el régimen máximo de absorción de cualquiera de las superficies de calentamiento del calentador Lummus es menor que el régimen máximo de absorción del calentador de tipo corriente u ordinario.

Otro calentador Lummus ha estado trabajando nueve meses en una planta de destilación de petróleo. Un tercer calentador ha sido recientemente instalado para el mismo servicio, y hay tres más bajo construcción. Para información completa sobre el calentador de petróleo Lummus, sírvase pedirnos nuestro Boletín B-1.

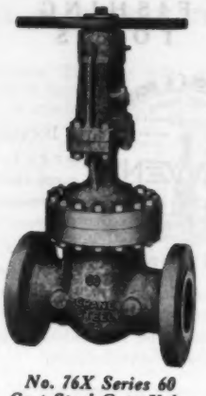
Afin de donner satisfaction à la demande en taux élevés de transfert de chaleur dans le chauffage du pétrole pour les appareils de distillation et de cracking, Lummus a conçu et réalisé un modèle entièrement nouveau de réchauffeur de pétrole.

Mis en service il y a deux ans, le premier de ces réchauffeurs de pétrole Lummus fonctionne en marche continue parallèlement avec un réchauffeur du type classique de construction moderne. Le même pétrole brut, pris et amené aux mêmes températures, est introduit dans les deux réchauffeurs. Toutes choses étant égales, la capacité du réchauffeur Lummus par pied carré de surface de chauffe est le double de celle du réchauffeur classique. Et cependant, dans les mêmes conditions d'opération, le taux d'absorption maximum de toute portion de la surface de chauffe du réchauffeur Lummus est inférieur au taux d'absorption maximum constaté dans le réchauffeur de modèle classique.

Un autre réchauffeur Lummus a été en service pendant neuf mois dans l'atelier du cracking du pétrole; un troisième réchauffeur a récemment été installé pour le même service; trois autres sont actuellement en cours de construction. Pour obtenir des détails complets sur le Réchauffeur de pétrole Lummus, demandez-nous notre Bulletin B-1.

THE LUMMUS COMPANY

50 CHURCH STREET, NEW YORK, U.S.A.



No. 76X Series 60
Cast Steel Gate Valve

No. 371X Series 60
Cast Steel Globe Valve

CRANE CAST STEEL VALVES FOR PIPE LINE SERVICE

Every pipe line installation faces the severe overloads that come from surging in the lines. Only all-steel materials in gate valves and fittings will offset this danger and protect your lines from fire hazards and severe pipe strains.

One installation, the oldest equipped with cast steel gate valves, has not suffered a shut-down due to gate valve trouble in all the 18 years that Crane Cast Steel Gate Valves have been in service!

You can use Crane Series 60 Cast Steel Gate Valves in high pressure lines and be sure of safe, efficient operation at all times. Wherever these cast steel gate valves have been installed they have made distinctive service records.

Crane supplies a variety of pipe line equipment in all-steel material for every type of refinery service. Thousands of Crane valves and fittings are in use in oil and gas fields, pipe lines, refineries and distributing stations.

Все трубопроводы работают при больших перегрузках, возникающих от неравномерного движения жидкости в трубах. Для предохранения трубопроводов от порчи и от пожаров, их необходимо снабжать стальными задвижками и стальными фитингами, так как только таковые в состоянии выдержать тяжелые условия работы.

На одном трубопроводе, самом старом из оборудованных стальными задвижками, установлены стальные литые задвижки CRANE, и за все 18 лет их службы не было ни одной остановки из-за порчи задвижек.

При установке стальных литых задвижек CRANE серии 60, на трубопроводах высокого давления, можно быть вполне уверенным в постоянной безопасности и продуктивности работы. Где бы эти задвижки не применялись, их работа повсюду давала прекрасные результаты.

Фирма CRANE изготовляет разнообразную стальную арматуру для трубопроводов нефтеперегонных заводов всех типов. Тысячи задвижек и фитингов CRANE установлены и работают на нефтяных и газовых промыслах, трубопроводах, нефтеперегонных заводах и распределительных станциях.

Toda instalación de tubería está sujeta a severas sobrecargas provenientes del oleaje en las líneas. Solo la construcción enteramente de acero de las válvulas de compuerta y sus accesorios puede sobreponerse a este peligro y proteger la tubería contra las amenazas de incendio y severas tensiones físicas.

Una instalación, la más antigua de todas las provistas con válvulas de compuerta de acero fundido, no ha tenido accidente alguno debido a desarreglo de sus válvulas de compuerta durante todos los 18 años en que su buen servicio ha dependido de las válvulas de compuerta Crane de acero fundido.

Las válvulas de compuerta Crane de acero fundido de la serie 60 pueden emplearse de acero fundido de la serie 60 pueden emplearse en tubería de alta presión con la absoluta certeza de que siempre funcionarán de un modo correcto, en todo sentido. En toda instalación en que se han empleado, estas válvulas de compuerta de acero fundido han establecido precedentes de excelente servicio extraordinarios.

La compañía Crane suministra una gran variedad de accesorios para tubería, todos de acero, para toda clase de servicio de refinería. Millares de válvulas y accesorios Crane se emplean actualmente en campos petrolíferos y de gas natural, sistemas de tuberías, refinerías y estaciones distribuidoras.

Toutes les tuyauteries doivent parfois supporter de fortes surpressions, et seuls les raccords et vannes tout acier peuvent écarter les dangers qui en résultent et éviter les avaries et les incendies.

La canalisation la plus ancienne, comportant des vannes en acier moulé, n'a jamais subi un seul accident, du fait que, depuis 18 années, elle est munie de Vannes Crane en Acier Moulé!

Les Vannes Crane de la Série 60 peuvent être employées pour les canalisations à haute pression pour assurer la sécurité et un rendement maximum. Partout où elles ont été utilisées, elles ont toujours donné satisfaction.

Crane fabrique une grande diversité de matériel tout acier pour tous usages dans les raffineries. Des milliers de vannes et de raccords Crane sont employés dans les champs pétrolifères et à gaz, les raffineries, les stations de distribution et pour les pipelines.

Write for illustrated catalogs covering our complete line of valves.

CRANE CO.

836 SOUTH MICHIGAN AVE., CHICAGO, ILL., U.S.A.

"VAREC" TANK VENTS

"VAREC" TANK VENTS and FLAME ARRESTERS reduce evaporation and prevent fire from entering tank. They are made of pure aluminum and are impervious to corrosive action from sulphur compounds or atmospheric elements. The Valve has renewable seats and is equipped with "VAREC" patented hyperbolic pallets which control "blow down" resulting in greater gas conservation.

The "VAREC" FLAME ARRESTER is designed like an entrainment separator and the element pulls apart to permit thorough inspection and positive cleaning. See advertisement elsewhere herein. The Unit has more flow capacity than any other.

ВЕНТИЛИ ДЛЯ РЕЗЕРВУАРОВ И ЗАДЕРЖИВАТЕЛИ ПЛАМЕНИ МАРКИ "VAREC" уменьшают улетучивание паров из резервуаров и недопускают пламя в резервуары. Они изготовляются из чистого алюминия и не подвержены раз'едающему действию сернистых соединений и атмосферы. Вентили имеют с'емные седла и снабжены патентованными гиперболическими клапанами "VAREC", контролирующими "обратный ход", благодаря чему увеличивается сбережение паров.

Задерживатели пламени "VAREC" сконструированы ввиде сборного сепаратора, причем отдельные элементы легко разбираются, благодаря чему возможна полная инспекция их и тщательная очистка. Наше об'явление напечатано в этом журнале. Установка имеет большую пропускную способност, чем какая-либо иная.

LAS VENTOSAS Y LOS EXTINGUIDORES DE LLAMAS "VAREC" reducen la evaporación y evitan la entrada del fuego al tanque. Se hacen de aluminio puro y son inafectados por la acción corroyente de los compuestos de azufre y elementos atmosféricos. La válvula tiene asientos reemplazables y está equipada con paletas hiperbólicas "Varec" patentadas, que regulan el escape, de lo que resulta una mayor conservación del gas.

EL EXTINGUIDOR DE LLAMAS "VAREC" se construye como un separador de entrenamiento, cuyo elemento se desarma para permitir fácil inspección y positiva limpieza. Sírvase ver nuestro anuncio en otra página de esta revista. Tiene mayor capacidad para el flujo que todo otro aparato similar.

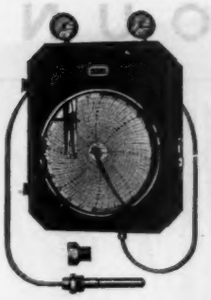
EVENTS DE RESERVOIR et PARE-FLAMME "VAREC" pour réduire l'évaporation et éviter les incendies dans les réservoirs. En aluminium pur inattaquable par les composés sulfureux ou les éléments atmosphériques. La soupape comporte des sièges remplaçables et des palettes "VAREC" hyperboliques brevetées évitant les échappements et assurant une meilleure conservation des gaz.

Le PARE-FLAMME "VAREC" est conçu suivant le principe du séparateur d'entrainement, avec un élément amovible qui permet de le visiter et de la nettoyer parfaitement. Voir l'annonce paraissant dans ce numéro. Rendement supérieur à celui de tout autre appareil similaire.

Write for Complete Catalogue.

THE VAPOR RECOVERY SYSTEMS COMPANY
COMPTON, CALIF., U. S. A.

Cable Address: "VAREC," Compton.
Export Branches: Brussels, Belgium, 9 Rue du Moniteur; New York, 30 Church Street; Maracaibo, Venezuela, Apartado 331.



An air-operated recording regulator so versatile that *practically any character of process control can be obtained, regardless of time lag in apparatus, by a simple screw driver adjustment on a graduated dial . . . without requiring a skilled operator or interruption of service.

Easily changed from direct to reverse-acting, or vice versa . . . no extra parts.

Compensates for fluctuations in air-pressure supply. Die-cast case; dust, moisture and fume-proof.

Available forms: for controlling temperature, pressure, temperature and pressure, rate of flow, liquid level.

*Where extreme load changes or badly balanced operating conditions exist, the TAYLOR "DUBL-RESPONSE CONTROL UNIT" is the only positive means of maintaining control-point.

Этот самозаписывающий регулятор, работающий воздухом, настолько гибок, что им можно контролировать почти любой процесс производства, независимо от чувствительности остальных аппаратов. Регулировка его производится простой отверткой, причем на аппарате имеется циферблат. Для этой регулировки не требуется особых знаний или перерыва в работе.

Весь механизм значительно усовершенствован. Его легко поставить с прямого на обратный ход или наоборот, — для этого не требуется дополнительных частей.

Он работает правильно и при переменном давлении подаваемого воздуха.

Кожух аппарата отлит под давлением; он непроницаем для пыли, сырости и газов.

Регулятор изготовляется следующих типов: для контроля температур; давлений; температур и давлений; количества протекаемой жидкости, и для контроля уровней жидкости.

Там где имеется большая перемена нагрузок или процесс производства плохо отбалансирован,—регулятор TAYLOR "DUBL - RESPONSE CONTROL UNIT" является единственным аппаратом для установления контроля.

Un regulador registrador neumático tan útil que practicamente se puede obtener con él cualquier procedimiento de regulación, sin atender a *atrasos* en el tiempo en los aparatos, simplemente usando de un detornillador de ajuste en una esfera graduada . . . sin que sea necesaria ninguna habilidad por parte del personal y sin interrumpir el servicio.

Grandes perfeccionamientos en todo el mecanismo.

Fácilmente se cambia de la acción directa a la inversa y *viceversa*—no tiene otras piezas extraordinarias.

Formas disponibles: Para regular temperaturas, presión, temperatura y presión, nivel de los liquidos y flujo de éstos.

En donde las condiciones son de cambios extremos en las cargas o muy descompensadas la TAYLOR "DUBL-RESPONSE CONTROL UNIT" es el único medio positivo de mantener el punto regulador.

Un régulateur enregistreur pneumatique d'une utilité si variée qu'on peut l'employer pour tout genre de contrôle de procédé, sans tenir compte du *retard* dans l'appareil, au moyen d'un ajustage simple an tournenis sur un cadran gradué —sans nécessiter l'intervention d'un technicien ou l'interruption de service.

Perfectionnements considérables au mécanisme entier.

Se change facilement de l'action directe à l'action inversée et *vice-versa*—sans addition d'aucune pièce.

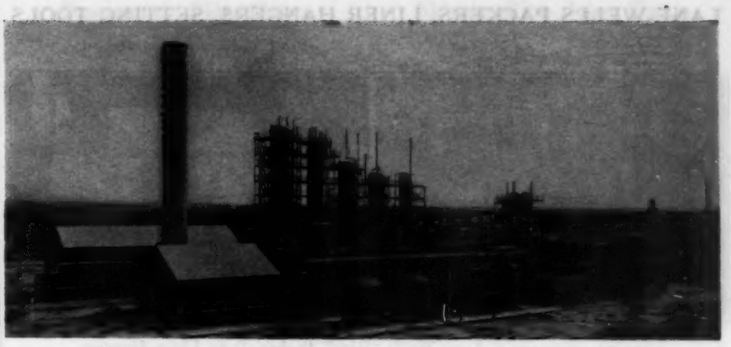
Boîte coulée sous pression; à l'épreuve de la poussière, de l'humidité et des fumées.

Modèles disponibles: Pour le contrôle des températures, de la pression, de la température et de la pression, de la vitesse de la circulation, du niveau du liquide.

Dans les cas où il existe des conditions extrêmes dans la charge ou des conditions mal équilibrées, la TAYLOR "DUBL-RESPONSE CONTROL UNIT" constitue le seul moyen positif de maintenir le point régulateur.

Write for Literature.

TAYLOR INSTRUMENT COMPANIES
Rochester, New York, U.S.A.



CRACKING PLANTS

Refineries operating under the broad license agreement of Gasoline Products Company, are exceptionally well equipped to meet the varying market conditions of the petroleum industry.

In designs for new equipment and for the modernizing of existing cracking units, there is available through the M. W. Kellogg Company, licensing agents of Gasoline Products Company, an exceptional service.

Through this service, refiners secure the benefits of the extensive research and development in cracking conducted by the organizations of several large refiners, plus the research division of Gasoline Products Company, which seeks to provide, continuously in the laboratory effective data applicable to the many problems of the petroleum industry. Apparatus is devised and operated not only from the standpoint of test tubes and work bench, but including actual cracking plants in miniature.

Refineries operating under a license from Gasoline Products Company are assured of equipment possessing sufficient flexibility, to meet the demands and specifications of those products which are the most profitable to produce.

Нефтеперегонные заводы, работающие по лицензионным договорам Gasoline Products Company, обладают исключительными возможностями приспособления и изменяющимся рыночным условиям нефтяной промышленности.

При проектировании нового оборудования или при переустройстве существующих крекинг-установок, фирма M. W. Kellogg Co., которая является лицензионным агентом Gasoline Products Company предоставляет в распоряжение клиентуры опыт исключительной организации.

Благодаря этому, нефтеперегонные заводы могут использовать все достижения обширных опытов и изысканий по крекинг-процессу, которые ведутся крупнейшими заводами, а также могут использовать и результаты работ изыскательского отдела Gasoline Products Company, целью которого является получение в лаборатории данных для разрешения многих проблем нефтепромышленности.

Данные для проектирования проверяются не только с точки зрения реакций в пробирках на лабораторном столе, но также и в крекинг-установках лабораторного типа.

Нефтеперегонные заводы, работающие по лицензиям Gasoline Products Company, могут быть уверены в том, что они имеют оборудование, работающее с достаточной гибкостью, чтобы выполнить требования и спецификации, предъявляемые к наиболее рентабельным продуктам.

Las refinerías que trabajan bajo la amplia licencia y acuerdo de la Gasoline Products Company están excepcionalmente equipadas para satisfacer las diversas condiciones del mercado de la industria del petróleo.

Al diseñar nuevos equipos y para modernizar las unidades destiladoras existentes se pueden tener los servicios de la M. W. Kellogg Company, agentes autorizados de la Gasoline Products Company.

Gracias a estos servicios los refinadores aprovechan los desarrollos e investigaciones extensas en destilación completa conducida por las organizaciones de diversas grandes refinerías, más la experiencia de la división de investigaciones de la Gasoline Products Company quien busaca continuamente suministrar datos de laboratorio aplicables a los diversos problemas de la industria del petróleo. Los aparatos son diseñados y accionados no solo desde el punto de vista experimental en tubos y mesas de trabajo, sino en instalaciones verdaderas en miniatura de destilación completa.

Las refinerías que trabajan bajo la licencia de la Gasoline Products Company tienen la seguridad de poseer equipos con suficiente adaptabilidad para satisfacer las demandas y especificaciones de los productos en los que se tienen mayores utilidades.

Les raffineries qui fonctionnent suivant le contrat libéral de licence de la Gasoline Products Company, sont exceptionnellement bien équippées pour satisfaire les conditions variées du marché de l'industrie pétrolifère.

Pour étudier des équipements nouveaux et moderniser les groupes existants de cracking, on peut disposer des services de la M. W. Kellogg Company, agents autorisés de la Gasoline Products Company.

Grâce à ce service, les raffineurs sont à même de bénéficier des recherches extensives et des progrès réalisés en cracking par les organisations de diverses raffineries importantes, ainsi que de ceux réalisés par le service des recherches de la Gasoline Products Company, qui cherche continuellement au laboratoire, á fournir des données pratiques applicables aux nombreux problèmes de l'industrie pétrolifère. Les appareils sont construits et actionnés, non seulement d'un point de vue expérimental en tubes à essai et sur établi de travail, mais comprennent de véritables installations de cracking en miniature.

Les raffineries qui fonctionnent en vertu d'une licence de la Gasoline Products Company, ont l'assurance de disposer d'un équipement possédant une adaptabilite suffisante pour satisfaire les exigences et spécifications imposées par les produits dont la production est la plus rémunératrice.

GASOLINE PRODUCTS CO.
Incorporated
11 Commerce Street **NEWARK, N. J., U.S.A.**
Cable: LICENCO"

LANE-WELLS PACKERS, LINER HANGERS, SETTING TOOLS

Showing shipment of Lane-Wells "Ring" Packer Type Liner Hangers, before and after boxing for shipment

The Lane-Wells Co., Engineers & Manufacturers, offers a complete line of Packers and Liner Hangers in types to meet almost any condition encountered in both drilling and producing wells, where a packer should be used.

They are furnished to pack between tubing and casing, casing and casing, tubing and formation, and casing and formation, in four basic types: (1) Hook-wall; (2) Bottom-hole; (3) Anchor; and (4) Rat-hole.

The exclusive Lane-Wells Ring Packing Assembly consists of multiple rings built of many layers of heavy, graphite-impregnated, bias-cut canvas, moulded over and around a live rubber core, these rings alternating with metal expansion rings. This assembly eliminates all danger of vulcanizing to the casing, and assures a positive seal. . . . Other sleeves, or assemblies, of rubber, canvas, lead, belting or other materials are furnished to meet individual requirements. . . . Plain Liner Hangers, also, are furnished.

The Lane-Wells Liner Setting and Resetting Tool allows the use of a threaded joint as a releasable connection providing adequate strength to insure complete safety in setting the heaviest liner. The tool is packed, assuring positive circulation into the liner, and is threaded to permit the use of tubing below it for washing purposes.

The Lane-Wells Co. is also the developer and operator of the Lane-Wells Gun Perforator and Magnetic Fishing Services.

Инженерно-заводская фирма LANE-WELLS CO. изготовляет комплектный и разнообразный набор пакеров и насосных подвесок, отвечающих почти всем условиям, какие встречаются при бурении и при эксплоатации скважин, при которых необходимы пакеры.

Эти пакеры изготовляются для установки между насосными и обсадными трубами, между обсадными и обсадными трубами, между насосными трубами и грунтом, а также между обсадными трубами и грунтом. Они бывают четырех основных типов: 1) Hook-wall; 2) Bottom-hole; 3) Anchor и 4) Rat-Hole.

Комплектная кольцевая набивка Lane-Wells состоит из многочисленных колец, сделанных из многих слоев тяжелой парусины, пропитанной графитом и заформованных над и вокруг резинового сердечника. Эти кольца чередуются с металлическими расширяющимися кольцами. Такая сборка исключает какую-либо опасность вулканизации в обсадных трубах и создает надежный запор. Фирма также изготовляет и другие манжеты и набивки, собранные из резины, парусины, свинца, ремней или других материалов, в зависимости от индивидуальных потребностей. Кроме того, фирма изготовляет простые подвески для глубоких насосов.

Инструмент Lane-Wells для установки и для перестановки глубоких насосов позволяет применять соединения на резьбе, что дает надежное скрепление, обладающее достаточной крепостью для безопасной установки самых тяжелых насосов. При установке инструмента обеспечивается свободный проток жидкости в насос, а резьба на инструменте дает возможность привернуть к нему снизу насосные трубы для промывочных целей.

Фирма Lane-Wells также разработала специальную пушку Lane-Wells для перфорирования труб, и магнитный ловильный инструмент, каковыми аппаратами она также и оперирует.

La Lane-Wells Co., ingenieros y fabricantes, ofrecen un surtido completo de empacadores y sujetadores de forros en tipos para satisfacer casi todas las condiciones que se encuentran en la producción y explotación de pozos petrolíferos, donde hay necesidad de emplear semejantes equipos.

Estos productos se suministran para empacar entre la tubería y la cubierta, entre cubierta y cubierta, entre tubería y formación y entre cubierta y formación, ofreciéndose en cuatro tipos principales: (1) pared de gancho, (2) hoyo de fondo, (3) ancla y (4) agujero de ratón.

El exclusivo grupo de empaquetadura anular Lane-Wells consta de anillos múltiples construídos de varias capas de lona gruesa grafitada y cortada al sesgo, moldeada alrededor de un núcleo de caucho elástico. Estos anillos se alternan con anillos metálicos de expansión. El grupo evita todo peligro de vulcanización a la cubierta y asegura un cierre positivo. Otros grupos o manguitos de caucho, lona, plomo, correaje y otros materiales, se suministran para satisfacer requisitos individuales. También se suministran sujetadores sencillos.

La herramienta de ajuste y reajuste Lane-Wells de canalización permite el empleo de una unión roscada, como una conexión desprendible, que provee adecuada firmeza para asegurar completa seguridad en la instalación de los forros más pesados. La herramienta está bien protegida por empaquetadura, asegurando positiva circulación en la canalización, y está roscada para permitir el uso de una tubería debajo de ella para el servicio de lavado.

La Lane-Wells Co. ha también y puesto en operación el perforador de pistola Lane-Wells y los sistemas magnéticos de pescar del mismo nombre.

La Lane-Wells Co., Ingénieurs et Fabricants, offre un assortiment complet de garnitures et d'attache-canalisations, comprenant une variété suffisante de modèles pour faire face à la quasi-totalité des conditions d'emploi, tant pour le forage proprement dit que pour la mise en exploitation des puits pétrolifères, où il convient de faire usage d'une garniture.

Ces garnitures sont fournies pour garnir entre tubage et revêtement, revêtement et revêtement, tubage et gisement, revêtement et gisement, en quatre types de base : (1) Accroche-paroi; (2) Trou de fond; (3) Ancre; et (4) Trou de rat.

L'ensemble exclusif Lane-Wells de garniture à anneaux consiste d'anneaux multiples constitués par de nombreuses couches superposées de fort canevas, imprégné de graphite et coupé en biais, ce canevas étant moulé sur et autour d'un noyau de caoutchouc natif; ces anneaux sont alternés avec des anneaux métalliques à expansion. Cet ensemble supprime tout danger de vulcanisation du revêtement, et assure un joint d'une étanchéité positive. . . . Il est fourni aussi d'autres manches ou ensembles, en caoutchouc, canevas, plomb, courroie ou autres substances, afin de donner aux exigencies individuelles. . . .

L'Outil Lane-Wells d'Ajustage et de Réajustage de canalisation permet l'emploi d'un joint fileté comme raccord détachable, ce qui assure une force suffisante pour donner toute la sécurité voulue à la mise en place de la canalisation la plus lourde. Cet outil est entouré de garniture, ce qui assure une circulation positive dans la canalisation, et il est fileté afin de permettre l'emploi de tubage au-dessous de son niveau, pour opération de lavage.

La Lane-Wells Co. a aussi créé et mis en service le Perforateur à Pistolet Lane-Wells ainsi que des Systèmes Magnétiques de Repêchage.

THE LANE-WELLS CO.

U. S. A.

Los Angeles - Houston - Tulsa - New York

YOUNGSTOWN

WHEREVER MEN DRILL FOR OIL YOUNGSTOWN PIPE WILL BE FOUND

Out in the fields where wells are drilled or stretching across the country to the centers of consumption, Youngstown steel pipe is serving the oil and gas industries in wells and pipe lines.

Whatever the service, whatever the conditions, the strength and endurance of this fine steel pipe is evidenced by its long life, its ability to stand abuse and its resistance to the corrosive actions of soil, atmosphere and moisture.

Thousands of miles of Youngstown Pipe—in wells and pipe lines—have proved to oil and gas men the world over that Youngstown is a safe investment for every pipe need.

DRILL PIPE—DRIVE PIPE—CASING TUBING—LINE PIPE

Фирма Youngstown поставляет свои стальные трубы как на нефтяные промысла, где производится бурение, так и на поля где укладывается трубопровод.

Как бы не были тяжелы условия работы, прочность и выносливость этих стальных труб сказывается в продолжительном сроке их службы, в их способности выдерживать усилия и их сопротивляемости разъедающему действию почвы, атмосферы и влаги. Тысячи миль труб Youngstown установлены в нефтяных скважинах и в трубопроводах. Это является достаточным доказательством для нефтяников всего мира, что трубы Youngstown пригодны для любых целей.

БУРИЛЬНЫЕ — ЗАБИВНЫЕ — ОБСАДНЫЕ — НАСОСНЫЕ И НЕФТЕПРОВОДНЫЕ ТРУБЫ

Desde los campos petrolíferos donde se perforan pozos y extendiéndose por todo el país hasta los centros de consumo, los tubos de acero Youngstown están sirviendo con tuberías en pozos y oleoductos a las industrias de petróleo y de gas.

Cualquiera que sea el servicio, cualesquiera que sean las condiciones, la fuerza y resistencia de de estos tubos finos de acero está evidenciada por su larga vida, su estabilidad, su resistencia a la acción corrosiva del suelo de la atmósfera y de la humedad.

Millares de millas de tuberías Youngstown—en pozos y en tueberías—han demostrado a los empresarios de gas y petróleo de todo el mundo que es una segura inversión los Youngstown para todas las necesidades de tuberías.

Dans les champs pétrolifères où se forent les puits, et s'étendant à travers le pays jusqu'aux centres de consommation, le tubage d'acier Youngstown sert les industries du pétrole et du gaz, au chantier et pour les canalisations.

Quel que soit le service, quelles que soient les conditions, la solidité et la résistance de ce tube d'acier supérieur ressortent de sa longue durée, de sa capacité de résistance aux usages durs, et du fait qu'il résiste aux actions corrosives du sol, de l'atmosphère et de l'humidité.

Des milliers de kilomètres de Tubage Youngstown—dans les puits et en canalisations—ont prouvé aux industries du pétrole et du gaz dans le monde entier que Youngstown constitue un placement sûr pour la satisfaction de tous besoins en tubage.

Youngstown Oil Country Tubular Goods are proving their unsurpassed quality in the most severe field service—all the world over.

The YOUNGSTOWN SHEET and TUBE CO.

General Offices - - - - - YOUNGSTOWN, OHIO, U.S.A.

Youngstown's pipe is distributed by

The Continental Supply Co., St. Louis, Mo.—International Supply Co., Tulsa, Oklahoma—Republic Supply Co., E. 7th St., Los Angeles, California.

NATIONAL UNIT PUMPERS—Types TH-800 and THD-800

These unit pumpers are complete, compact, self-contained units.

Twin cranks, equalized double pitman, four-leg samson post and herringbone gears make these pumpers completely balanced units. Long service is assured by completely enclosed bearings. The base, samson post, and beam are fabricated from welded structural steel.

The reduction gears are designed especially for oil well pumping. Conservatively designed gear faces and diameters avoid high tooth and bearing pressures and excessive wear.

The two vertical members of the pitman are hinged where they connect to the cross beam and the beam pitman bearing is mounted on trunnions parallel to the axis of the beam. This arrangement positively equalizes pitman load. The link type polished rod hanger approximates straight lift and avoids excessive wear on the polished rod and stuffing box. Clearance for running tubing and rods is obtained by removing the hanger and the nose of the beam. It is not necessary to disconnect the pitman.

The height of the complete unit is 15 feet 10¾ inches, width 72½ inches and length 29 feet 2 inches. Net weight (less counterweights and side braces) 20,700 pounds. Gross weight crated for export 23,566 pounds. Contents 642.7 cubic feet.

Эти индивидуальные качалки представляют собою комплектные, компактные и чрезвычайно работоспособные установки.

Благодаря двум кривошипным дискам, двум отбалансированным шатунам, стойке на четырех столбах и елочным шестерням, эти индивидуальные качалки являются вполне отбалансированными установками. Все подшипники совершенно закрытого типа, чем обеспечивается долгосрочная служба качалок. Нижняя рама, стойка и верхний балансир сварной конструкции из сортовой стали.

Передаточные шестерни для уменьшения числа оборотов сконструированы специально для условий откачки нефти из скважин. Конструкция шестерен и их диаметры исключают чрезмерные давления на зубья и на подшипники, и связанный с этим износ.

Два вертикальных шатуна подвешены к поперечной скобе балансира, а подшипник на балансире покоится на цапфе и расположен параллельно к балансиру. Такая конструкция всецело отбалансировывает нагрузки на балансир. Подвеской со звеньями достигается прямолинейность под'ема полированной штанги, чем исключается излишний износ штанги и сальника. Для того, чтобы иметь достаточно места для спуска насосных труб и насосных штанг приходится только снять подвеску для полированной штанги и головку балансира. Нет необходимости раз'единять шатуны.

Полная высота комплектной качалки составляет 15 фут. 10¾ дюйма, ширина 72½ дюйма, а длина 29 фут. 2 дюйма. Вес нетто (без контрбалансов и боковых стяжек) 20.700 англо-фунтов. Полный вес в экспортной упаковке 23.566 англо-фунтов. Об'ем 642,7 куб. фута.

Estas bombas mecánicas son equipos completos, compactos y con base propia.

Cigüeñales gemelos, doble biela de conexión compensada, caballete de soporte de cuatro patas y engranajes a estilo de espina de arenque imparten a estas bombas una compensación completa. Sus cojinetes completamente tapados aseguran prolongado servicio. La base, el caballete o torre de soporte y la viga se fabrican de acero estructural soldado.

Los engranajes de reducción están especialmente proyectados para servicio de bomba de pozo petrolífero. La moderación en las caras y en los diámetros de los engranajes evita la amplificación de los dientes y de las presiones sobre los cojinetes conducentes a desgaste excesivo.

Los dos miembros verticales de la biela de conexión están abisagrados en el punto en que se conectan a la viga transversal y el cojinete de la viga de la biela de conexión está montado en soportes paralelos al centro de la viga. Esta disposición compensa o equilibra positivamente la carga en la biela de conexión. El colgador de varilla pulimentada, de tipo de eslabón, tiene levantamiento casi recto e impide el desgaste excesivo de la varilla pulimentada y caja de estopa. El espacio para el paso de tubería y varillas se obtiene quitando el colgador y la punta de la viga. No hay necesidad de desconectar la biela de conexión.

La altura del grupo completo es 15 pies 10¾", con anchura de 72½" y longitud de 29 pies 2". El peso neto (menos los contrapesos y refuerzos laterales) es de 20.700 libras. El peso bruto, con embalaje de exportación, es de 23.566 libras. Contenido, 642,7 pies cúbicos.

Ces groupes de pompage sont des ensembles complets, compacts, et autonomes.

Des bras de manivelle jumelés, une double bielle de connexion équilibrée, un montant renforcé à quatre pieds et des engrenages à chevrons font de ces pompes des groupes parfaitement équilibrés. Leur durabilité en service est assurée grâce à des paliers complètement clos. La base, le montant de renfort et la poutre sont en acier de construction soudé.

Les engranages de réduction sont spécialement étudiés pour l'épuisement des trous de forage pétrolifère. Les largeurs et diamètres de pignons d'engrenages sont calculés de façon à éviter les pressions élevées sur les dents et les coussinets, et à réduire l'usure au minimum.

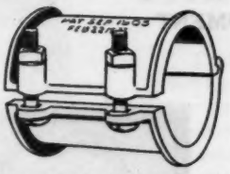
Les deux pièces verticales de la bielle de connexion sont articulées à leur point de rencontre avec la poutrelle transversale, et le palier de la bielle de connexion de la poutre est monté sur des tourillons parallèles à l'axe de la poutrelle. Cet agencement équilibre positivement la charge de bielle de connexion. La bride de fixation de biellette polie du type à barrette équivaut sensiblement à la levée en ligne, tout en évitant tout excés d'usure de la biellette polie et du presse-étoupe. L'espace suffisant pour faire circular le tubage et les biellettes est réalisé en enlevant la bride de fixation et le nez de la poutre. Il n'est pas nécessaire de désaccoupler la bielle de connexion.

La hauteur du groupe complet est de 15 pieds 10¾ pouces, sa largeur de 72½ pouces et sa longueur de 29 pieds 2 pouces. Poids net (moins les contrepoids et les étais latéraux) 20.700 lbs. Poids brut en caisse à claire-voie pour l'exportation: 23.566 lbs. Tonnage: 642,7 pieds cubes.

THE NATIONAL SUPPLY CORP.

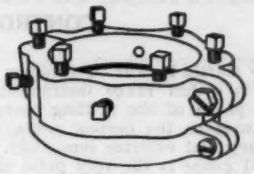
30 Rockefeller Plaza, New York, U.S.A.

Emergency Pipe Clamp



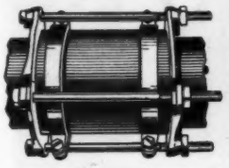
For stopping leaks in pipe lines, instantly, permanently, under any pressure or temperature. Saves pipe replacements . . . steam fitting jobs . . . costly shutdowns. Easily and quickly applied . . . anywhere. Tremendously strong. Inexpensive. Made of malleable iron . . . complete with rubber gasket. The standard pipe repair the world over for 37 years. Write for prices and complete catalog.

Skinner Pipe Joint Clamp



For permanently stopping leaks at joints where pipe is screwed into fittings . . . saves cost of tearing out and renewing . . . prevents costly shutdowns. Clamp made of malleable iron—is shipped complete with gasket. Gasket is forced directly into threads. No pressure too high. A standard repair for 37 years. One-half to 12-inch sizes. Write for prices and complete catalog.

Skinner Collar Leak Clamp



Stops permanently every known type of collar leak in oil or gas lines . . . regardless of kind of collar used . . . or condition of line. Clamp made of malleable iron . . . Gasket furnished. Gasket is forced directly into threads under tremendous pressure. Used all over the world. Write for prices and complete catalog.

Хомут для остановки утечек из труб. Этими хомутами, при любых давлениях и температурах, мгновенно и навсегда останавливается утечка из труб. Их применение устраняет возможность смены труб, сохраняя расходы по производству работ с арматурой паропроводных линий, а также устраняет крупные потери, связанные с остановкой работ трубопроводов. Их можно легко и быстро устанавливать в любом месте и они отличаются огромной силой. Стоимость хомутов незначительна. Они изготовляются из ковкого чугуна и поставляются комплектными с резиновыми прокладками. Втечение более 37-ми лет эти хомуты являются стандартным приспособлением для починки труб. Обращайтесь к нам за ценами и комплектными каталогами

Хомуты фирмы Skinner *для трубных соединений.* Эти хомуты применяются для того, чтобы навсегда остановить утечку в тех местах, где трубы ввернуты в арматуру. Их применение сохраняет расходы по разборке и смене частей трубопроводов, а также крупные потери, связанные с остановкой работ. Они изготовляются из ковкого чугуна и поставляются комплектными с прокладками, которые вжимаются непосредственно в резьбу. Эти хомуты пригодны для самых высоких давлений и являются втечение более 37-ми лет стандартным приспособлением для ремонта трубопроводов. Они изготовляются размерами от ⅛" до 12". Обращайтесь к нам за ценами и комплектными каталогами.

Хомуты фирмы Skinner *для муфт.* Этими хомутами навсегда останавливается утечка через муфты любых типов в нефтепроводах и газопроводах, независимо от того какие муфты применяются или каково состояние трубопровода. Они изготовляются из ковкого чугуна и поставляются с прокладками, которые под огромным давлением вжимаются непосредственно в резьбу. Эти хомуты применяются по всему миру. Обращайтесь к нам за ценами и комплектными каталогами.

Abrazadera Provisional de Tubo para tapar escapes en tuberías instantánea y permanentemente. bajo cualquiera presión o temperatura. Ahorra el reemplazo de tubos . . . reparaciones difíciles . . . paralizaciones costosas. Se applica con facilidad y rapidez en todas partes. Enormemente firme. Económica. Se hace de hierro maleable . . . completa con empaquetadura de caucho. La reparación normal de tubo en todo el mundo desde hace 37 años. Pídanos precios y catálogo general.

Abrazadera de Unión de Tubo Skinner para tapar permanentemente los escapes en las uniones en que el tubo está atornillado en conexiones . . . ahorra el costo de quitar y renovar tubos . . . evitando costosas paralizaciones. Esta abrazadera se hace de hierro maleable y se suministra completa con empaquetadura. La empaquetadura se mete por fuerza en la rosca. Resiste toda presión. Una reparación normal desde hace 37 años. En tamaños de media pulgada a 12 pulgadas. Pídanos precios y catálogo general.

Abrazadera Skinner para Escape por Collar tapa permanentemente el escape por el collar de todo tipo conocido de tubería de gas o de petróleo . . . sin consideración de clase de collar usada . . . o condición de la tubería. Esta abrazadera se hace de hierro maleable y se suministra con empaquetadura. Esta útima se mete por fuerza en la rosca bajo una presión enorme. Se emplea en todas partes del mundo. Pídanos precios y catálogo general.

Manchon de secours pour tuyaux sert à arrêter instantanément et définitivement les fuites de canalisations, et cela sous toute pression ou température. Economise sur les remplacements de tuyaux . . . les travaux d'ajustage à la vapeur . . . les arrêts d'exploitation onéreux. Se monte aisément et rapidement . . . n'importe où. Robustesse extraordinaire. Bon marché. En fer malléable . . . complet avec joint de caoutchouc. C'est la pièce standard de réparation de tuyaux dans le monde entier depuis plus de 37 ans. Demandez-nous prix et catalogue complet.

Manchon Skinner de joint de tuyau sert à arrêter définitivement les fuites de joints aux points où le tuyau est vissé dans les garnitures . . . évite les frais de démontage et de remplacement . . . supprime les arrêts dexploitation on'éreux. En fer malléable, ce manchon esta expédié complet avec joint. Le joint est monté à force directement dans le filetage. Pas de pression trop forte. Pièce de réparation standard depuis 37 ans. Grandeurs d' ½ à 12 pouces. Demandez-nous prix et catalogue complet.

Manchon Skinner pour fuites de collier obture définitivement tout type connu de fuite de collier sur canalisations de pétrole ou de gaz . . . quel que soit le genre de collier employé . . . ou l'état du tuyau. Manchon en fer malléable . . . Fourni avec joint. Le joint est monté à force directement dans le filetage, et cela sous pression élevée. S'emploie dans le monde entier. Demandez-nous prix et catalogue complet.

M. B. SKINNER COMPANY

Manufacturers and Engineers—Est. 1898

SOUTH BEND, INDIANA, U.S.A.

THE MARTIN-DECKER "QUINTUPLEX" DRILLING CONTROL INSTRUMENT

The Martin-Decker "Quintuplex Drilling Control" is a full range instrument that covers every phase of the drilling operation, on the shallowest or the deepest wells, with positive accuracy and extreme sensitivity. This master control gauge is the very pulse of the drilling rig. Weight on bottom, load on derrick, slush pump pressure, torque in the drill pipe and rotary table speeds are all shown at a glance, on one twelve-inch dial. Five individual units are installed separately and substantially in one case; Weight Indicator, Super-Sensitive Weight Indicator, Torque Gauge, Slush Pump Gauge and Rotary Table Tachometer. All elements are standard, one in no way interfering with or depending on the functioning of the others; any of them quickly and easily removed and replaced without affecting the operation of any of the others, and each one providing the driller with necessary information for complete drilling control.

A single recording gauge records weight, torque and mud pump pressures on one extra large chart, thus eliminating the installation and maintenance of several recording gauges and the daily care of extra charts. The Quintuplex gauge and combination recorder cases are mounted in a heavy steel box, ready for installation. Since its introduction to the oil industry in 1934, the Martin-Decker Quintuplex Drilling Control Instrument has been adopted as standard equipment by a majority of the leading oil companies throughout the world. Units similar to that illustrated above are now in service in every rotary field in the United States as well as in Germany, Roumania, Abyssinia, French Morocco, Russia, Iraq, Assam, Burma, Dutch East Indies, West Indies, Venezuela, Argentina, Mexico, Canada, Japan, Poland, Colombia, as well as in many other oil producing countries.

Новый инструмент фирмы MARTIN-DECKER CORP., называемый "Quintuplex Drilling Control" (пятикратный контроль бурения) отмечает совершенно точно и с чрезвычайной чувствительностью все фазы бурильных работ как в самых мелких, так и в самых глубоких скважинах. Этот основной инструмент является как бы пульсом бурильных работ. На двенадцатидюймовом циферблате сразу же видны следующие показания: давление на долото, нагрузка на вышку, давление в грязевом насосе, крутящее усилие на бурильных трубах и скорость вращения ротора. В одном футляре прочно установлено пять отдельных индивидуальных приборов, а именно: индикатор веса, сверхчувствительный индикатор веса, указатель крутящего усилия, манометр грязевого насоса и счетчик скорости вращения ротора. Все эти приборы стандартные, причем каждый из них ни в какой мере не связан и не зависит от работы остальных. Любой из них может быть быстро и легко снят и заменен без какого-либо влияния на работу других инструментов. Каждый из этих приборов дает буровому мастеру все необходимые данные для полного контроля бурильных работ.

На одном самозаписывающем приборе с экстра-большим бланком производится одновременно записи веса, крутящего усилия и давления в грязевом насосе. Это устраняет необходимость установки нескольких самозаписывающих аппаратов и ухода за ними. Также не приходится ежедневно иметь дело с несколькими бланками, так как комплектные записи получаются ежедневно на одном и том же бланке.

Пятикратные указательные приборы и комбинированный самозаписывающий аппарат монтированы в тяжелом стальном ящике, вполне готовом для установки в буровой.

El nuevo "Regulador Quintuple de Perforación" (Quintuplex Drilling Control) de la Martin-Decker, es un instrumento de escala completa que comprende todas las fases de la perforación de pozos, desde los más bajos hasta los más profundos, con positiva exactitud y extrema sensitividad. Este notable instrumento constituye el verdadero pulso del trabajo de perforación. El peso al fondo, la carga sobre la torre, la presión de la bomba de cieno o fango, el esfuerzo de reacción en el tubo del taladro y las velocidades de la mesa giratoria, quedan todas acusadas a la simple vista, en un cuadrante de doce pulgadas de diámetro. Cinco grupos individuales se instalan separadamente en casi una sola caja: el indicador de peso, el indicador de peso supersensitivo, el manómetro de esfuerzo de reacción, el manómetro de la bomba de cieno y el taquímetro de la mesa giratoria. Todos los elementos son de construcción normal. El funcionamiento de uno no perturba el funcionamiento de otro, pues no hay dependencia de acción entre ninguno de ellos. Cualquiera puede quitarse y reinstalarse sin afectar el funcionamiento de los restantes. Cada elemento procura la necesaria información para asegurar un gobierno completo de todo el trabajo de perforación.

Un sencillo indicador acusa el peso, el esfuerzo de reacción y las presiones de la bomba de cieno, sobre un registro bien grande, evitándose así la instalación y la conservación de varios instrumentos registradores y el cuidado diario de adicionales registros. El funcionamiento completo queda diariamente anotado en un solo registro.

El instrumento Quintuplex y caja de registro de combinación están montados en una caja de acero bien resistente, lista para inmediata instalación.

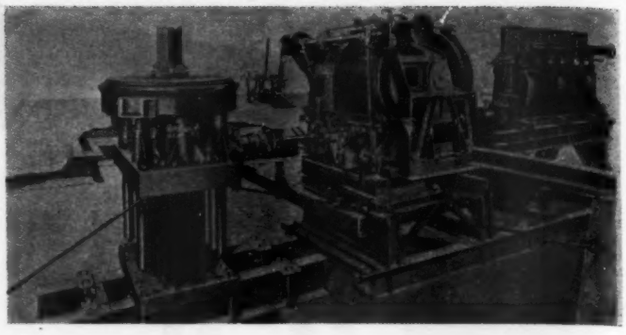
Le nouveau "Contrôleur de Forage Quintuplex" le Martin-Decker est un instrument de portée complète qui couvre toutes les phases des opérations de forage, quelle que soit la profondeur des puits creusés, et cela avec une précision rigoureuse et une sensibilité extrême. Ce manomètre de contrôle centralisé est en quelque sorte le pouls de l'appareillage de forage. Le poids exercé au fond du puits, la charge de la grue, la pression de la pompe à boue, l'effort de torsion dans le tuyau de forage et les vitesses de la table pivotante apparaissent tous sur un cadran unique de douze pouces, ce qui permet d'en prendre connaissance en un clin d'oeil. Cinq instruments de fonction distincte sont installés séparément et solidement aoujettis dans un coffret unique, à savoir: Indicateur de poids, Indicateur de poids ultra-sensible, Manomètre enregistreur d'efforts de torsion, manomètre de pompe à boue et Tachymètre de table tournante. Tous ces divers éléments sont standard, aucun d'eux ne gênant le bon fonctionnement des autres ou dépendant du fonctionnement de ceux-ci; on peut rapidement, et sans aucune difficulté, enlever et remplacer l'un quelconque de ces instruments sans affecter en quoi que ce soit le fonctionnement d'aucun des autres appareils. En un mot, l'ensemble de ces instruments fournit à l'ouvrier-foreur tous les renseignements nécessaires au contrôle parfait du forage.

Un manomètre-enregistreur unique enregistre les pressions de la charge, de l'effort de torsion et de la pompe à boue, sur une planche de grandes dimensions, ce qui supprime l'installation et l'entretien de plusieurs manomètres-enregistreurs, ainsi que l'ennui de tenir journellement plusieurs planches supplémentaires, qu'il faut à la fin de chaque journée recopier sur une planche unique.

Le coffret contenant combinaison manomètre et enregistreur Quintuplex est monté dans un coffre renforcé en acier, tout prêt à être installé.

MARTIN-DECKER CORP.

LONG BEACH, CALIF., U.S.A.



HYDRIL PRESSURE DRILLING SYSTEM

The principle of the Hydril system of pressure control is to counteract the pressure in the formation with greater pressure exerted by pumps from above.

The Hydril system employs external flush joint drill pipe equipped with back pressure valves used through a simple but highly efficient control head containing double packers, either or both of which make constant contact with the pipe while running in, rotating and coming out of the hole. When the tools are out of the hole a drilling valve in the cellar is closed, but pump pressure is still maintained against the formation through a connection below the valve.

When pressures are so great as to require forcing the pipe into the hole and snubbing it when coming out, the Hydril yoke and automatic slips are used, insuring absolute safety to the men and to the well.

Принцип системы Hydril для контроля давлений заключается в том, что давлению, которое существует в скважине, противопоставляют более высокое давление, создаваемое насосами.

При системе Hydril применяют бурильные трубы с гладкими не выступающими наружными муфтами; эти трубы снабжаются уравновешивающими клапанами. Трубы спускаются через простую, но очень надежную контрольную головку, имеющую двойные пакера. Один из этих пакеров, или оба пакера всегда обхватывают бурильные трубы, как при спуске их, так и при вращении и при под'еме. Когда инструменты извлечены из скважины, то задвижка, находящаяся под полом буровой, запирается. Однако давление от насосов продолжает передаваться в скважину через впускное соединение, расположенное ниже задвижки.

Когда давление в скважине настолько велико, что трубы приходится опускать с усилиями и сдерживать их при под'еме, то следует применять вилку Hydril и автоматические зажимные плашки, что абсолютно обеспечивает безопасность рабочего и предотвращает поруку скважины.

El principio del sistema Hydril de control de presión es contrarrestar la presión en la formación, con mayor presión ejercida por las bombas, desde arriba.

El sistema Hydril emplea tubería de unión plana exterior, con válvulas de contrapresión accionadas mediante un sencillo, pero eficaz cabezal de regulación, con dobles empaquetaduras, las cuales, independientemente o separadas, hacen contacto con el tubo mientras viajan, giran y salen del agujero. Cuando las herramientas están afuera del agujero, la válvula de perforación se cierra, pero la presión de la bomba se mantiene todavía contra la formación, por medio de una conexión debajo de la válvula.

Cuando las presions son tan grandes que requieren forzar el tubo en el agujero y afirmarlo cuando se le saca, la horquilla y los patines automáticos Hydril resuelven el problema, con absoluta seguridad para los trabajadores y el pozo.

Le principe du système Hydril de contrôle de la pression consiste à résister à la pression dans la formation au moyen d'une pression plus forte produite par des pompes à la surface.

Le système Hydril emploie du tubage extérieur de forage à joint affleuré muni de soupapes de dégagement commandées par une tête de contrôle simple mais à grande efficacité contenant des garnitures doubles, dont l'un ou les deux assurent un contact permanent avec le tubage pendant l'introduction, la rotation et l'extraction du trou de sondage. Quand les instruments sont hors du puis, une soupape de forage se ferme au fond du trou, mais on continue d'appliquer la pression de la pompe contre la formation au moyen d'un raccord audessous de la soupape.

Quand les pressions sont si grandes qu'il devient nécessaire d'enfoncer le tubage de force dans le trou et de le renfoncer quand il vient à sortir, il convient d'employer l'etrier Hydril et les coulisses automatiques, ce qui assure toute sécurité aux hommes et aux puits.

HYDRIL COMPANY

714 West Tenth St.,
Los Angeles, Calif., U.S.A.

Hydril Company of Texas

Doheny Stone Drill Co. of Texas
4300 Calhoun Road,
Houston, Texas, U.S.A.

***Cable Address:* "HYDRIL"**

MacCLATCHIE PRODUCTS

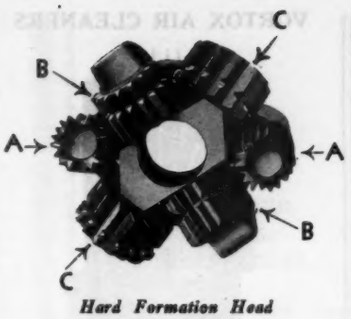
A new catalog of oil field equipment has recently been issued by the MacClatchie Manufacturing Co. This book contains specifications and illustrations of the complete line of MacClatchie products, including automatic rotating blowout preventers, reamers and underreamers, mud pump valves, pistons, and liner pullers, quick change cementing heads, automatic catheads, flow nipples, stop cocks, quick unions, geared brakes for draw-works, and the new "Hydro Seal" plug valves. Copies of this catalog may be secured without cost from the MacClatchie Mfg. Co., Compton, Calif., U. S. A.

Фирма MacClatchie Manufacturing Co. выпустила недавно новый каталог оборудования для нефтяных промыслов. В этом каталоге имеются спецификации и иллюстрации всех продуктов MacClatchie, включая автоматические вращающиеся предохранители против выбросов, ринеры и расширители, клапаны грязевых насосов, поршни, вытягиватели цилиндровых рубашек быстро сменяющиеся цементирующие головки, автоматические головки для работы оттяжкой, ниппели, продувные краны, быстро схватывающие соединительные муфты, тормаза с шестернями для бурильных лебедок и новые клапаны "Hydro Seal" (с гидравлическим запором). Экземпляры этого каталога могут быть получены бесплатно у MacClatchie Manufacturing Co., Compton, Calif., U. S. A.

La MacClatchie Manufacturing Co., acaba de publicar un nuevo catálogo de equipos para la explotación de yacimientos petrolíferos. Este catálogo contiene las especificaciones e ilustraciones del surtido completo ofrecido por la MacClatchie, que comprende dispositivos automáticos y rotativos para la prevención de explosiones, escariadores diversos, válvulas para bombas de lodo o cieno, émbolos y accesorios de tracción por cable, cabezas de cementación de cambio rápido, conexiones de flujo, grifos de cierre, uniones rápidas, frenos de engranaje para instalaciones de tracción y las nuevas válvulas cónicas "Hydro Seal". Escribiendo a la MacClatchie Mfg. Co., Compton, California, E. U. A., podrá Ud. obtener ejemplar gratuito de este catálogo.

Un nouveau catalogue d'equipement pour exploitation de champs pétrolifères a été récemment publié par la MacClatchie Manufacturing Co. Ce catalogue contient les spécifications et illustrations de l'assortiment complet offert par Macqui comprend des dispositifs automatiques et rotatifs de prévention des explosions, des aléseurs et sous-aléseurs, des soupapes de pompe à boues, des pistons et des dispositifs de traction à câble, des têtes de cémentation à changement rapide, des têtes porte-lames automatiques, des raccords d'écoulement, des robinets de fermeture, des manchons de raccord rapide, des freins à engrenages pour appareillage de pompage, et les nouvelles soupapes à cônes "Hydro Seal". On peut se procurer gratuitement ce catalogue, en écrivant à la MacClatchie Mfg. Co., Compton, California, U. S. A.

MacCLATCHIE MFG. CO.
COMPTON, CALIF., U.S.A.



Hard Formation Head

EXCEPTIONAL CORE DRILLS

The Dean Core Drill has made exceptional recoveries in the toughest formations in the deep Kettleman and Belridge oil fields of California. Its features include: Interchangeable drag type and roller bearing rock type heads; patented core retainer which driller can open or close at will, severing the core at its base, by mechanical means; large circulation passages; simple in design, smooth running, and easy to operate. All heads heat treated, ground to size, and tungsten carbide faced. Sizes 3⅞ to 27-inch diameter; barrels in standard 20 and 30-foot lengths.

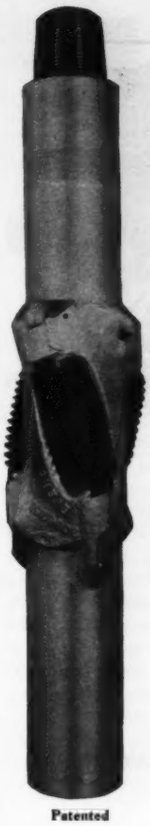
Грунтоноской DEAN были произведены исключительные геологические обследования в очень твердых породах глубоких скважин калифорнийских районов Kettleman и Belridge. На достоинства этой грунтоноски надо отметить следующие: головка работающая стальной дробью и головка с роликовыми подшипниками для прохождения скалистых пород, — взаимозаменяемы; патентованный задерживатель колонки грунта, который может быть открыт или закрыт по желанию рабочего, механически срезывает колонку у ее основания; большие циркуляционные каналы, простота конструкции; плавность работы и легкость обращения. Все головки термически обработаны, обточены до правильных размеров и облицованы твердым сплавом, в состав которого входит вольфрам и корбид. Диаметры от 3⅞ до 27 дюймов. Стандартная длина цилиндра 20 и 30 фут.

La Barrena Dean para sacar muestras ha logrado recuperaciones excepcionales en las formaciones más tenaces, en los campos de petróleo Kettleman y Bebridge de California. Sus detalles incluyen: Tipo intercambiable de arrastre y cabezales con cojinetes de rodillos del tipo de roca; retenedor patentado de las muestras, que puede ser abierto o cerrado por el operador, cortando la muestra por la base por medios mecánicos; grandes pasos para la circulación; sencillez en el diseño; de funcionamiento suave; y fácil de manejarse. Todos los cabezales son tratados al caldeo, pulidos al tamaño, y están revestidos de carburo de tungsteno. Se hacen en tamaños de 3⅞ a 27 pulgadas de diámetro; los cañones en los tamaños normales son de 20 y 30 pies de largo.

Le Tube Carottier Dean de forage a permis de prélever des échantillons dans des formations exceptionnellement dures dans les champs pétrolifères Kettleman et Belridge en Californie à de grandes profondeurs. Ses principales caractéristiques sont les suivantes: Têtes interchangeables du type à traction et du type à roulement pour rocs; sonde brevetée de carottage que le sondeur peut ouvrir ou fermer à volonté, détachant la carotte par incision à sa base par des moyens mécaniques; passages spacieux de circulation; de construction simple, à marche douce et de conduite aisée. Toutes les têtes sont traitées thermiquement, meulées à la cote, et plaquées de carbure de tungstène. Grandeurs de 3⅞ à 27 pouces de diamètre; barillets standardisés de 20 et 30 pieds de long.

CHAS. A. DEAN
Bakersfield, California, U.S.A.

THE SIEVERS REAMER



Patented

Until the past few years, reamers were generally considered as oilwell drilling tools which were used to prepare the drilled hole prior to setting the casing. However, the introduction of the Sievers Reamer has broadened the field of their usefulness to an extent where these reamers are now indispensable for numerous drilling operations.

It has been found that a straight hole may be maintained by placing a Sievers Reamer a certain distance above the bit since a long rigid bearing is thus obtained to overcome any tendency for the bit to walk or gyrate, thereby increasing the drilling speed and lessening the chances for twistoffs.

Rock bit cutters are limited to a minimum amount of side wall reaming surface and consequently drill tight hole, particularly in the harder formations. It is advantageous to place a Sievers Reamer directly above the bit to keep the hole to gage. The easy slicing action does not in any way retard or hamper the bit performance.

Many operators centralize and stabilize their core barrels by placing a Sievers Reamer above them, thus assuring a good grade of core recovery. If the core-barrel is not stabilized and rotated on its true axis, the core may become broken and disintegrated to such an extent that a correct picture of the underground structure is not obtainable.

Буровые мастера окончательно уоедились в том, что при комбинации римера SIEVERS, установленного за бурильным долотом или за долотом грунтоноски получаются:

1. Более прямая скважина.
2. Увеличенная скорость бурения.
3. Лучшие образцы геологических пород.
4. Меньший допускаемый завор между стенками скважины и обсадными трубами.
5. Уменьшение износа бурового оборудования.
6. Кроме всего этого: уменьшаются расходы по бурению и увеличивается безопасность.

РИМЕРЫ SIEVERS применяются с успехом для: —

Работ по расширению скважин;
Плавной работы бурильного долота и грунтоноски;
Исправления скважины;
Выпрямления скважины;
Увелечения диаметра скважины,
Выправления обсадных труб.

La experiencia práctica de los mismos dueños ha demostrado que la utilización de un escariador Sievers, a continuación de la perforación con taladro o barrena, produce los excelentes resultados siguientes:

1. Agujero más recto.
2. Mayor velocidad de perforación.
3. Mejor recuperación de núcleo.
4. Tolerancias más aproximadas entre el agujero y el forro.
5. Menor desgaste del equipo de perforación.
6. Y, SOBRE TODO, menor costo de funcionamiento, con mucho mayor seguridad.

Los escariadores Sievers son también muy útiles para lo siguiente:

Escariación.
Estabilización de cilindros de taladros.
Acondicionamiente de agujeros.
Rectificación de agujeros.
Agrandamiento de agujeros.
Matrices de funda.

Les sondeurs ont constaté sans contredit que la combinaison d'un élargisseur Sievers derrière les trèpans de forage et de carottage permet d'obtenir les résultats suivants:

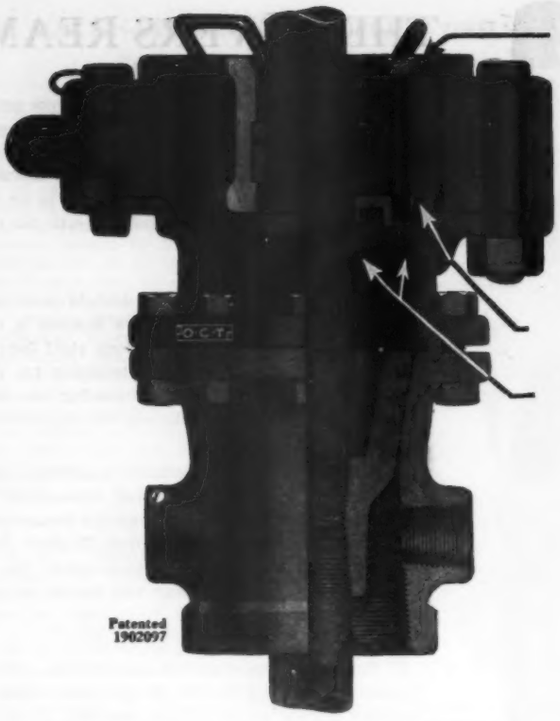
1. Un trou plus rectiligne.
2. Une vitesse de forage plus grande.
3. Une extraction meilleure de carotte.
4. Des jeux réduits entre les parois du trou et le couvelage, plus près des tolérances théoriques.
5. Diminution de l'usure de l'équipement de forage.
6. ET SURTOUT: Opération plus économique avec une sécurité plus grande.

On emploie les ELARGISSEURS SIEVERS en toute confiance pour efectuer:

un alésage
une stabilisation de trépan et de barillet de carottage
un conditionnement du trou de sondage
un redressement du trou
un élargissement du trou
des étampes de cuvelage

Write For Catalog!

SECURITY ENGINEERING CO.
Whittier, California, U.S.A.
Export Office: **920 Lexington Ave., New York City, U.S.A.**



O-C-T TYPE "H" TUBING HEAD—BLOWOUT PREVENTER COMBINATION

The O-C-T combination shown above is the Type "H" Tubing Head and Type "H" Blowout Preventer, the latter especially designed for the convenience of users of O-C-T Type "H" Tubing Head. The combination permits drilling in, running and landing tubing with ease and complete safety. The design of Type "H" preventer needs no outlets, as circulation returns through the tubing head outlet. This safety combination is sold through leading supply stores, and is completely described in the O-C-T Catalog.

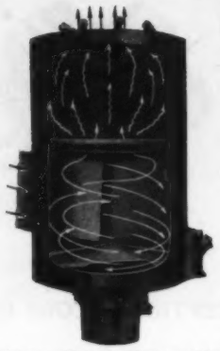
Комбинированная установка O-C-T, изображенная выше, состоит из головки насосных труб типа "H" и предохранителя против выбросов типа "H", причем последний специально сконструирован для удобства клиентов, применяющих головку насосных труб O-C-T типа "H". Эта комбинация дает возможность производить легко и совершенно безопасно как работы по бурению, так и спуск или под'ем насосных труб. Предохранитель против выбросов не имеет отводных каналов, так как циркуляция направляется через отвод, имеющийся в головке насосных труб. Эта безопасная комбинированная установка продается через крупнейших поставщиков нефтяного оборудования. Она детально описана в каталоге фирмы O-C-T.

La combinación O-C-T mostrada arriba es el tipo "H" de cabeza de tubería y el tipo "H" de evitador de explosión, este último proyectado especialmente para la conveniencia de los que usan la cabeza de tubería O-C-T de tipo "H". La presente combinación permite perforar, correr y colocar tubería con toda facilidad y seguridad. La construcción del evitador de explosión de tipo "H" no necesita de salidas, pues la circulación regresa por el conducto de salida de la cabeza de la tubería. Esta combinación de seguridad se vende por los principales establecimientos de abastecimientos, y se describe en detalle en el catálogo O-C-T.

La combinaison O-C-T représentée ci-dessus est la tête de tubage du type "H" et le dispositif de prévention d'explosions du type "H", ce dernier conçu et construit spécialement pour la commodité de ceux qui font emploi de la tête de tubage O-C-T Type "H". Ce dispositif de combinaison permet de perforer, descendre et mettre en place le tubage d'exploitation avec la plus grande facilité et en toute sécurité. Le modèle de construction du dispositif de prévention d'explosions du type "H" ne demande aucune conduite de sortie, étant donné que la circulation revient par le passage de sortie de la tête de tubage. Cette combinaison de sécurité est en vente dans toutes les boutiques importantes de fournitures; la description complète est fournie dans le catalogue O-C-T.

OIL CENTER TOOL COMPANY
HOUSTON, TEXAS, U.S.A.
Cable Address: "OCENTOL"

VORTOX AIR CLEANERS



Self washing, oil type Vortox Air Cleaners are built for installation on internal combustion engines and air compressors. The many sizes have capacities ranging from ten cubic feet to five thousand cubic feet of air per minute.

The three fundamental air cleaning principles;—centrifugal action, a cyclonic oil spray, and an oil washed crimped wire filter, are combined and coordinated most effectively in VORTOX. The cleaners are filled with a specified quantity of light oil. Air enters at a tangent to the side. A violent whirl of air and oil spray is set up, which washes the air as well as the filter element. The entrapped dirt returns continually with the oil to the bottom of the cleaner.

Manufacturers in all parts of the world install VORTOX. When buying new equipment, specify Vortox Air Cleaners.

Самопромывающиеся очистители воздуха VORTOX масляного типа применяются для установки их на двигателях внутреннего сгорания и на воздушных компрессорах. Они изготовляются всевозможных размеров, пропускной способностью от десяти кубических фут до тысяч кубических фут воздуха в минуту.

В очистителях VORTOX скомбинированы и работают чрезвычайно эффективно три основных принципа очистки воздуха, а именно: центрофугальное действие, циклонное (завихривающее) разбрызгивание масла и фильтр из скомканной проволоки, промываемой маслом. Очистители заполнены легким маслом специального качества. Воздух поступает по касательной к стенкам очистителя. Кроме того, подается сильная завихривающая струя воздуха и масла, которая промывает воздух, а также и все части фильтра. Захваченные частицы грязи непрерывно подаются вместе с маслом на дно фильтра.

Фабриканты всего мира устанавливают очистители VORTOX. При покупке нового оборудования требуйте очистители воздуха VORTOX.

Los depuradores de aire Vortox, tipo de aceite, de limpieza automática, se construyen para instalación en motores de explosión interna y en compresores de aire. Los muchos tamaños tienen capacidades comprendidas entre diez pies cúbicos y cinco mil pies cúbicos de aire por minuto.

Los tres principios fundamentales del depurador de aire: acción centrífuga, rocío ciclónico de aceite y filtro de alambre rizado limpiado por aceite, se combinan y coordinan de la manera más efectiva en el VORTOX. Los depuradores se llenan con una cantidad dteerminada de aceite flúido. El aire entra tangentemente en relación al costado. Se forma así un violente torbellino de aire y rocío de aceite, que da limpieza al aceite y también al elemento del filtro. La suciedad atrapada regresa continuamente con el aceite al fondo del depurador.

Los fabricantes en todas partes del mundo instalan el VORTOX. Al comprar equipos nuevos, especifique los depuradores de aire Vortox.

Les épurateurs d'air Vortox du type à huile, à lavage automatique, sont prévus pour installation sur moteurs de combustion interne et compresseurs à air. Il en est offert de multiple grandeurs dont le débit varie de dix pieds cubes à cinq mille pieds cubes d'air à la minute.

Les trois principes fondamentaux d'épuration d'air—à savoir l'action centrifuge, un pulvérisateur cyclonique d'air, et un filtre à treillis gaufré et lavage d'huile—se trouvent combinés et heureusement coordonnés dans l'appareil VORTOX. Ces épurateurs sont remplis d'une quantité déterminée d'huile légère. L'air y pénètre selon la tangente du coté. Un violent tourbillon d'air et d'huile pulvérisée est provoqué, ce qui assure le lavage de l'air ainsi que de l'élément de filtrage. Les impuretés retenues reviennent continuellement avec l'huile au fond de l'épurateur.

Dans tous les pays du monde, les fabricants font l'installation de VORTOX. Lors de l'achat de nouval équipement, ne manquez pas de bien spécifier les épurateurs d'air Vortox.

VORTOX MANUFACTURING COMPANY
Claremont, California, U.S.A.

The CAVINS

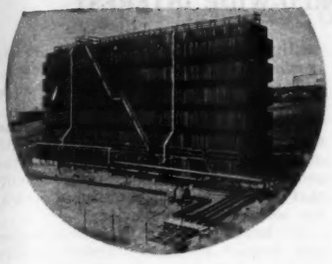
The CAVINS is the original cleanout device of this type and is in fact a bailer, a fishing tool, and a perforation washer all in one tool. It provides the fastest, most efficient method known for cleaning out wells, recovering loose sand, hard packed sand bridges, shale, rocks and millings. When used with a junk basket or trap it recovers cones, rollers, broken discs, slips, and pieces of iron, wood and steel weighing up to 40 pounds. While operating as a bailer or fishing tool, it cleans the perforations in the screen pipe thoroughly. Write for illustrated, descriptive bulletin. Complete information and performance records supplied on request.

Аппарат CAVINS для очистки скважин представляет собою фактически комбинацию трех инструментов, а именно: желонки, ловильного инструмента и аппарата для промывки перфорированных труб. Им достигается наиболее быстрый и наиболее эффективный метод очистки скважин, ловли случчих песков, твердых прессованных песков, сланцеватых глин, скалистых пород и фрезов. В комбинации с корзиной или трапом этот аппарат выдавливает нижние фрезы, боковые фрезы, поломанные диски, слипы, куски железа, дерева и стали весом до 40 фунтов. Работая как желонка или ловильный инструмент, этот аппарат также основательно очищает отверстия перфорированных труб. Требуйте наши иллюстрации и бюллетени с описанием аппарата. По требованию, нами также поставляются дополнительные информации и данные с записями действительной работы этого инструмента.

La CAVINS es la herramienta original de limpieza de su tipo. Es, en realidad, una achicadora, una pescadora y una lavadora de perforación, en la forma de una sola herramienta. Representa el método más rápido y eficaz, que se conoce, para la limpieza de pozos. Recoge la arenilla suelta, los montículos de arenilla endurecida, esquistos, rocas y otras partículas. Cuando se emplea con cesta o trampa, recoge conos, rodillos, discos quebrados y otras piezas de hierro, de madera o de acero, que pesen hasta 40 libras. Cuando funciona como achicadora o herramienta de pescar, limpia perfectamente las perforaciones en el tubo de malla. Pídanos boletín ilustrado. A solicitud daremos información completa, incluyendo informe de su funcionamiento.

Le CAVINS est le dispositif de nettoyage original du genre, et il réunit en fait dans un seul outil, un écopeur, un outil de repêchage, et un laveur de perforations. Il offre la méthode la plus rapide et la plus efficace que l'on conaisse pour nettoyer les puits, et pour extraire de sable fin, les masses de sable tassé dur, les schistes, rocs et débris de fraisage. Quand on l'emploie avec un panier ou une cage à ferraille, il sert à extraire les cônes, les rouleaux, disques brisés, glissières, et les morceaux de fer, de bois et d'acier jusqu'à concurrence de 40 livres. Tout en fonctionnant comme écopeur ou outil de repêchage, il nettoie à fond les perforations du tuyau à crépine. Demandez-nous notre fascicule descriptif, illustré. Sur demande, nous fournissons la documentation complète avec données de rendement.

The CAVINS COMPANY
2853 Cherry Avenue
Long Beach, Calif., U.S.A.
R. J. Eiche, Foreign Representative.
Cable Address: "Cavins, Long Beach."



FLUOR COOLING TOWERS

By design and construction, Fluor Aerator Cooling Towers positively prevent wind-blown spray and needless loss of water. Panels do not interfere with air circulation at wind velocities under six miles, but increase pressure drop at higher velocities. Maximum break-up of both air and water insures great efficiency with minimum ground space and height. Positive spray elimination permits operation of Fluor Cooling Towers close to other equipment. They can be built in all sizes from five gallons per minute upward. More than 3000 installations in all parts of the world and for all purposes have been made in the past few years. Send for descriptive booklet.

Конструкция и устройство Холодильных Вашень Fluor Aerator таковы, что они совершенно устраняют относ струй воды ветром и непроизводительные потери воды. Панели не препятствуют циркуляции воздуха при ветрах, имеющих скорость меньше шести миль, но ими увеличивается потеря давления при больших скоростях. Максимальная работа воздуха и воды обеспечивает высокий коэффициент полезного действия, при минимальной площади пола и минимальной высоте. Отсутствие разбрызгивания позволяет устанавливать Холодильные Вашни Fluor вблизи других сооружений. Они строятся любых размеров, начиная от пяти галлонов в минуту и выше. В течение нескольких последних лет во всех частях света и для разных целей сделано более 3000 установок. Требуйте наш описательный бюллетень.

Gracias a su proyecto y construcción, las torres de enfriamiento por aeración Fluor evitan positivamente el rocío soplado por el viento y otras pérdidas innecesarias de agua Los paneles no perturban o dificultan la circulación de aire a velocidades de viento menores de seis millas, sino que aumentan la bajada de presión a velocidades más altas. La máxima separación del aire y del agua aseguran un gran rendimiento, con superficie de piso y altura en grado mínimo. La eliminación positiva del rocío permite el funcionamiento de las torres de enfriamiento Fluor en punto cercano a otras instalaciones. Se construyen en todo tamaño, de cinco galones por minuto como mínimo. Durante estos útimos años se han instalado más de 3.000 de estas torres, en diversas partes del mundo, para numerosos trabajos. Pídanos nuestro folleto descriptivo.

La construction des tours de refroidissement à aérateur Fluor est conçue de telle façon que celles-ci suppriment positivement le brouillard chassé par le vent et les pertes inutiles d'eau. Les panneaux ne gênent pas la circulation de l'air à des vitesses du vent inférieures à six milles, mais accentuent la chute de pression à de plus grandes vitesses. Une division maximum tant de l'air que de l'eau assure une efficacité supérieure avec une superficie de terrain et une hauteur minimums. La suppression positive du brouillard permet de faire fonctionner les tours de refroidissement Fluor tout près d'autre équipement. On peut les construire de toutes les grandeurs, à partir de cinq gallons à la minute. Plus de 3000 installations, dans toutes les parties du monde et pour tous genres d'emplois, ont été faites dans ces dernières années. Demandez-nous la brochure descriptive.

FLUOR CORPORATION, LTD.

909 East 59th Street, Los Angeles, Calif.

McCormick Building, CHICAGO, ILL. — 220 East 42nd Street, NEW YORK, N. Y.

BREWSTER Wire-Line CORE BARREL

This BREWSTER Core Barrel goes into the well on a wire line—you do not pull the drill stem out of the hole. Takes a core in from 40 to 60 minutes at any depth. You save from 3 to 6 hours on every core. It's so easy and quick that you are never tempted to pass up likely formations. Results guaranteed. Ask for quotation.

Грунтоноска BREWSTER спускается в скважину на канате, причем бурильная штанга не извлекается из скважины. Колонка грунта с любой глубины получается втечение 40-60 минут. При получении каждой колонки грунта, буровой мастер экономит от 3-х до 6-ти часов. Она работает так легко и быстро, что при бурении никогда нет стремления пройти через грунт без обследования такового. Результаты работы гарантированы. Просим обращаться к нам с запросами.

Este tubo de perforación de muestras BREWSTER se introduce en el pozo colgante de un cable de alambre. No hay necesidad de quitar el vástago del taladro del pozo. Este tubo perfora una muestra en un espacio de 40 a 60 minutos, a cualquiera profundidad. Se ahorran de 3 a 6 horas en cada operación de perforar muestra. La muestra se obtiene con tanta facilidad y rapidez que nunca se deja pasar la oportunidad de explorar un yacimiento de posible valor. Asegura resultados positivos. Pídanos información detallada y precios.

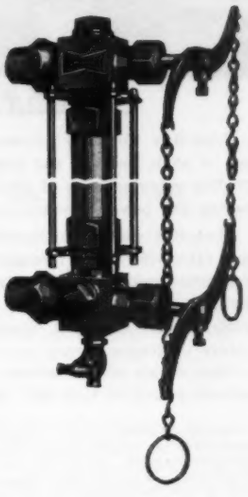
Ce Tube de carottage BREWSTER est introduit dans le puits monté sur un fil—il n'y a pas besoin de tirer la tige de forage du puits. Ce tube prélève une carotte à toute profondeur, en un espace de temps variant de 40 à 60 minutes. Vous épargnez ainsi de 3 à 6 heures sur chaque opération de carottage. Le prélèvement d'une carotte se fait si facilement et si rapidement que l'on n'est jamais tenté de sauter un gisement qu'on aimerait prospecter. Les résultats qu'il assure en sont garantis. Demandez-vous nos cotations.

THE BREWSTER COMPANY, Inc.

Shreveport, Louisiana, U.S.A.

PENBERTHY AUTOMATIC INJECTOR

Illustrated here is only one of the complete line of Penberthy Automatic Injectors; the high pressure injector shown is built to operate efficiently under typical oil field conditions. It is recommended for pressures from 100 to 200 pounds, also hot water and deep suction lift. A Penberthy Injector will supply the feed water to oil field boilers at minimum cost. It is quickly and easily installed, reliable under the most severe operating conditions and requires little attention and no careful handling because it is ruggedly constructed and has no delicate parts. Every injector is tested on actual boiler duty before it is shipped.



PENBERTHY "SAFEGUARD" LIQUID LEVEL GAGE

This is a thoroughly safe device for indicating the liquid level in tanks containing liquids of any kind that do not attack bronze. The construction is very rugged and the gage is recommended for working pressures up to 300 pounds. It is made from high grade steam bronze metal and the workmanship is excellent; all parts are machine finished, buffed and polished. Every gage is tested under pressure and rigidly inspected. The action of the automatic shut-off valves (that prevent loss of tank contents when glass is broken) is instantaneous and positive.

For the other Penberthy Products, see our advertisement in this issue.

Этот совершенно безопасный водомерный прибор служит для указания уровня жидкости в резервуарах, содержащих жидкости не раз'едающие бронзу. Конструкция прибора очень прочна и он рекомендуется для рабочих давлений до 300 англо-фунтов. Он изготовлен из высококачественной прутковой бронзы и великолепно обработан; все части закончены на станках, отшлифованы и отполированы. Каждый прибор испытывается под давлением и проходит строгую инспекцию. На приборе имеется автоматический запорный клапан, который предотвращает потерю жидкости при поломке водомерного стекла. Этот клапан работает мгновенно и надежно.

Обратите внимание на наше об'явление, помещенное в этом журнале, в котором также указаны и другие изделия Penberthy.

На иллюстрации изображен один из автоматических инжекторов Penberthy. Фирма изготовляет комплектный набор таких инжекторов. Изображенный инжектор высокого давления построен для продуктивной работы в обыкновенных промысловых условиях. Он рекомендуется для давлений от 100 до 200 англо-фунтов, также для горячей воды и для под'емов с глубоким засасыванием. Инжектором Penberthy можно подавать питательную воду для промысловых котлов с минимальными расходами. Он легко и быстро устанавливается, работает надежно при самых тяжелых условиях и требует мало внимания и ухода, так как конструкция его очень проста и он не имеет нежных частей. Каждый инжектор, до отправки, испытывается в действительной работе на котле.

Este es un aparato completamente seguro para indicar el nivel de cualquier líquido, que no ataque al bronce, contenido en un tanque. De construcción muy firme. Su indicador está calibrado para acusar presiones efectivas hasta de 300 libras. Se hace de fino bronce con una precisión extraordinaria. Todas sus piezas se labran a máquina, alisan y pulen. Cada indicador se ensaya bajo presión y se examina con sumo cuidado. La acción de las válvulas automáticas (que evitan la salida del líquido del tanque, al romperse el vidrio) es instantánea y positiva.

Para otros productos Penberthy, sírvase ver nuestro anuncio en esta revista.

Ilustramos aquí sólo uno de los numerosos inyectores automáticos de marca Penberthy. Este modelo de alta presión funciona eficazmente bajo las más exigentes condiciones físicas de los campos petrolíferos. Se recomienda para presiones de 100 a 200 libras, y para levantamiento por succión o aspiración de agua caliente, etc. de gran profundidad. El inyector Penberthy suministra agua de alimentación de caldera, en campos petrolíferos, a un costo mínimo. Se instala con facilidad y rapidez. Seguro bajo las condiciones más exigentes. Requiere poca atención. Fácil manejo, debido a su firme construcción y ausencia de piezas delicadas. Cada inyector se somete a prueba práctica en caldera, antes de salir de la fábrica.

L'appareil ci-contre est un dispositif de toute sécurité servant à indiquer le niveau du liquide dans les réservoirs contenant les liquides les plus divers qui n'attaquent pas le bronze. La construction en est très robuste et l'indicateur est recommandé pour les pressions ne dépassant pas 300 livre. Il est en bronze de qualité supérieure et l'exécution en est excellente; toutes les pièces de la machine sont finies et polies à fond. Tous les indicateurs sont éprouvés sous pression et soumises à une inpection des plus strictes. Le fonctionnement des soupapes automatiques d'arrêt qui empêchent les déperditions du contenu du réservoir lorsque le verre vient à se briser, est instantané et positif.

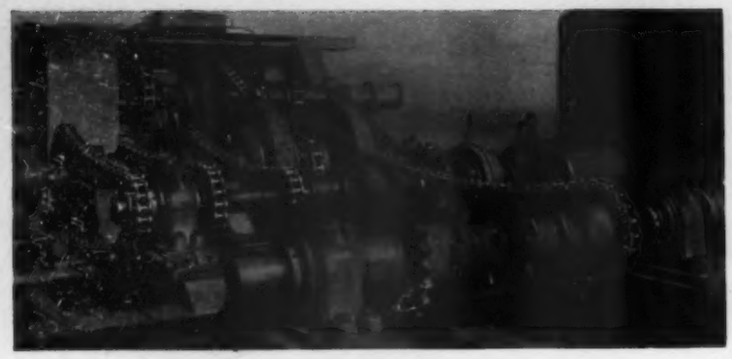
En ce qui concerne les autres Produits Penberthy, se reporter à notre annonce dans la présente publication.

La gravure ci-contre représente seulement un des nombreux Injecteurs Automatiques Penberthy constituant une collection complète; l'injecteur de haute pression représenté est construit de manire à fonctionner efficacement dans des conditions typiques de champ pétrolifère. It est recommandé pour des pressions de 100 à 200 livres, aussi pour le levage d'eau chaude et pour aspiration en profondeur. Un Injecteur Penberthy pourra fournier l'eau d'alimentation aux chaudières des champs pétrolifères avec un minimum de frais. Il est d'une installation rapide et facile, de tout repos dans les conditions les plus exigeantes d'exploitation et n'exige que peu de surveillance et aucun précaution spéciale dans le maniement grâce à sa construction robuste et au fait qu'il ne comporte aucune pièce délicate. Tous les injecteurs sont soumis à des essais pratiques par mise en service réelle sur chaudière, avant d'être expédiés à la clientèle.

PENBERTHY INJECTOR CO.

Manufacturers of Quality Products since 1886

Detroit, Michigan, U.S.A. — Windsor, Ontario, Canada



LINK-BELT ROTARY SPROCKET CHAINS

Link-Belt Company pioneered in the art of chain making, and are today the leading manufacturers of chains for conveying and power transmission purposes.

Link-Belt chains, as illustrated above, are extensively used throughout the oil industry, and the "SS" Class Chains, built to A.P.I. dimensions, provide a suitable chain of correct capacity for any rotary drilling service.

This double >——< arrow trade-mark identifies genuine Link-Belt chains.

The Link-Belt vibrating screen illustrated below, is a simple, rugged unit for reclaiming, degassing and cleaning rotary mud. The result of years of development work, its economy and reliability have been proved by service in the principal oil fields of the world. It has been adopted by most of the major oil companies, as standard equipment. The screen is self-contained, portable, and easily installed in the low head room usually available.

The vibrator shaft of the screen is driven from an electric motor, steam turbine, or gas engine.

Фирма LINK-BELT COMPANY была пионером по изготовлению цепей и в настоящее время она является первенствующим фабрикантом конвеерных цепей и трансмиссионных цепей.

Цепи LINK-BELT, иллюстрированные выше, широко применяются во всей нефтяной промышленности, причем цепи класса "SS", размеры которых соответствуют спецификациям A.P.I. (Американского Нефтяного Института), пригодны для любых условий работ, существующих при вращательном бурении.

По этой >——< двухтрехточной торговой марке устанавливается подлинность цепей LINK-BELT.

Вибрирующая сетка LINK-BELT, иллюстрированная ниже, является простым и прочным оборудованием для восстановления и очистки грязевого раствора. Она сконструирована на основании многолетнего опыта и ее экономность и надежность доказаны в действительной работе на крупнейших нефтяных промыслах всего мира. Она применяется как стандартное оборудование большинством крупных нефтяных компаний. Сетка представляет собою вполне собранную машину, которая легко переносится и устанавливается в обычном помещении с низким потолком.

Вал вибратора сетки приводится в движение электромотором, паровой турбиной, или газо-мотором.

La Link-Belt Company, una de las primeras en el arte de fabricar cadenas, es actualmente una de las fábricas más importantes de cadenas empleadas para el transporte de materiales y la transmisión de energía.

Las cadenas Link-Belt, ilustradas aquí arriba, tienen mucha aplicación en toda la industria del petróleo. Las cadenas de la categoría "SS" fabricadas conforme con las dimensiones del A.P.I., constituyen las más adecuadas, por su correcta capacidad, a todo trabajo de perforación rotativo.

La marca de fábrica aquí representada en la forma de una flecha doble >—< garantiza la autenticidad de las cadenas Link-Belt.

El filtro vibrador Link-Belt, que mostramos abajo, es un equipo sencillo y de firme construcción empleado para el tratamiento recuperador, la destilación seca y la limpieza del lodo de rotación. Este aparato es el resultado de muchos años de experiencia. Su funcionamiento económico y de toda confianza ha sido demostrado en servicio práctico en los principales campos petrolíferos del mundo. Ha sido adoptado por casi todas las compañías petroleras importantes, como equipo de norma. Este filtro es completo, portátil y de instalación muy fácil en lugares de muy limitado espacio.

El árbol vibrador del filtro se acciona por un motor eléctrico, turbina a vapor o motor de gas.

La Link-Belt Company, un pionnier dans l'art de fabriquer des chaines, est actuellement le plus important fabricant de chaines employées en fabrique pour le transport des matériaux et la transmission de l'énergie.

Les chaines Link-Belt, représentées ci-dessus, sont d'un emploi très répandu dans toute l'industrie du pétrole, les chaines de Catégorie "SS", fabriquées conformément aux cotes A. P. I., offrent la chaine par excellence, de calibre convenable, pour tout service de forage rotatif.

La marque de fabrique ci-contre qui représente une flèche >——< garantit l'authenticité des chaines Link-Belt.

Le filtre vibrateur Link-Belt, représente ci-dessous, est un filtre simple et robuste employé pour le traitement récupérateur, la distillation sèche et le nettoyage des boues de rotation. Cet appareil a bénéficié d'une expérience de nombreuses années; son fonctionnement économique et de tout repos a été prouvé en service dans les principaux champs pétrolifères du monde. Il a été adopté par la presque totalité des compagnies pétrolifères d'élite, comme équipement standard. Ce filtre est complet par lui-même, portatif, et d'installation facile, n'ayant habituellement qu'un faible encombrement en hauteur.

L'arbre vibrateur du filtre est actionné par un moteur électrique, une turbine à vapeur ou un moteur à essence.

LINK-BELT COMPANY

Indianapolis, Ind., U.S.A. **Philadelphia, Pa., U.S.A.**

Export Sales Office: 2680 Woolworth Bldg., New York, N. Y., U.S.A.

Cable and Radio Address: "Linkbelt"

LINK-BELT VIBRATING SCREEN FOR ROTARY MUD

CRACKING HOLDS WORLD-WIDE INTEREST

Cracking today is the center of interest of the world-wide oil industry, and that interest is more intent than ever before.

Fast-moving world developments and trends are responsible for this increased interest.

Interest in cracking is not new.

Dubbs cracking units—hundreds of them—have been in profitable operation for years, the world over, cracking the widest variety of charging stocks.

But the search for the solution of the insistent problems of petroleum production control and market stabilization has led oil executives of every nation to study the oil business from new angles.

Out of this study has come increased recognition of the value and importance of the cracking process, not only as a means of making gasoline of the best quality but also as a most effective economic force for stabilizing the industry.

Three chief factors today lend added importance to cracking:

1. Leaders in all oil-producing countries are alive to the fact that prosperity of the industry depends on restricting production of crude oil to the quantity that will produce the gasoline needed by the best refining methods.

2. Improvement of automobile engines and demand for their further improvement has brought world-wide demand for gasoline of high anti-knock value.

3. Installation of the cracking process in any country, whether it produces crude oil or not, makes possible the building of an oil industry which gives employment to labor, brings revenue to the government and makes for national security.

В настоящее время крекинг-процесс более чем когда либо является центром внимания мировой нефтяной промышленности.

Этот повышенный интерес об'ясняется быстрым движением мирового прогресса.

Интерес к крекингу не нов.

Сотни крекинговых установок DUBBS работают прибыльно втечение многих лет по всему миру, крекируя самое разнообразное сырье.

В поисках за разрешением насущных проблем регулирования мировой добычи нефти и стабилизации рынка, ответственные нефтеработники всех стран начали изучение нефтяного дела под иным углом зрения.

В результате этого изучения, увеличилось сознание ценности и важности крекингового процесса, не только как способа для получения бензина высшего качества, но также как серьезного экономического фактора для стабилизации нефтяной промышленности.

Следующие три главных фактора в настоящее время еще больше увеличивают значение крекинга:

1. Руководители нефтяной промышленности всех стран, где добывается нефть, признают, что успех этой промышленности зависит от сокращения добычи нефти до того количества, при которым можно получить весь необходимый газолин, применяя наилучшие методы перегонки.

2. Усовершенствования в автомобильных моторах и требования дальнейших улучшений таковых, вызывают мировой спрос на бензин с высокими антидетонирующими свойствами.

3. Постройка крекинг-установок в любой стране, независимо от того, добывается ли там нефть или нет, дает возможность создания нефтеобрабатывающей промышленности; это в свою очередь уменьшит безработицу, увеличит приход казны и укрепит оборонноспособность страны.

La destilación completa de los petróleos, "Cracking" es el centro de interés de la industria mundial del petróleo, y ese interés es ahora mayor que nunca. Los desarrollos rápidos y las tendencias actuales son los responsables de ese interés creciente.

El interés en la destilación completa no es nuevo.

Las unidades Dubbs para "Cracking" tienen muchos años de estar en explotación que deja utilidades en centenares de lugares sobre todo el mundo, destilando la más grande variedad de petróleos en existencia.

Pero, la necesidad de buscar solución a los problemas dominantes en la producción de petróleo y la estabilización de los mercados ha conducido a los directores en todas las naciones al estudio de la parte mercantil del petróleo desde nuevos puntos de vista.

De ese estudio ha resultado el reconocimiento creciente del valor e importancia del procedimiento de la destilación completa, no sólo como medio de obtener gasolina de la mejor calidad, sino como el medio más eficaz de estabilizar los mercados.

Actualmente hay tres factores principales que le dan mayor importancia a la destilación completa:

1. Los principales petroleros en los países productores de petroléo comprenden que la prosperidad de la industria depende de la restricción de la producción del petróleo crudo a la cantidad que produzca la gasolina necesaria por los mejores métodos de refinación.

2. Los perfeccionamientos en los motores de los automóviles y la demanda de de nuevos perfeccionamientos ha hecho que aumente la demanda mundial de gasolina de la calidad que evita los golpes de los motores.

3. Las instalaciones del procedimiento de la destilación completa en cualquier país, sea o no productor de petróleos crudos, permite el establecimiento de una industria de petróleo que da trabajo a diversos operarios, cria rentas para los gobiernos y se hace para seguridad nacional.

Le cracking du pétrole est de nos jours l'intérêt central de l'industrie mondiale du pétrole, et cet intérêt est actuellement plus vif qu'il ne l'a jamais été par le passé. Cet intérêt accru s'explique par les développements mondiaux rapides et les tendances nouvelles de l'industrie.

L'intérêt attaché au cracking n'est pas nouveau.

Les appareils Dubbs de cracking—par centaines—fonctionnent sur une base rémunératrice depuis bien des années et dans le monde entier, effectuant le cracking d'une gamme étendue de pétroles les plus divers.

Mais la nécessité de trouver une solution aux problèmes dominants de la production du pétrole et de la stabilisation du marché pétrolifère, a amené les industriels du pétrole de toutes les nations à étudier l'industrie pétrolifère sous des angles nouveaux.

De cette étude, il est résulté qu'on reconnait de plus en plus la valeur et l'importance du procédé du cracking, non seulement en tant que moyen de préparer de l'essence de qualité très supérieure, mais aussi en tant que force économique des plus influentes pour stabiliser l'industrie.

Trois facteurs principaux donnent aujourd'hui une nouvelle importance au cracking:

1. L'élite des industriels du pétrole dans tous les pays producteurs reconnaissent l'importance du fait que la prospérité de l'industrie pétrolifère dépend de la restriction de la production de pétrole brut à une quantité telle qu'elle donnera, par un raffinage suivant les meilleures méthodes connues, la quantité d'essence faisant l'objet de la demande réelle.

2. Les perfectionnements aux moteurs pour automobiles et la demande incessante de nouveaux perfectionnements ont amené une demande mondiale en essence à grand pouvoir antidétonant.

3. L'installation du procédé du cracking dans un pays qu'il soit ou non producteur de pétrole brut, permet d'y établir une industrie pétrolifère, ce qui crée du travail ouvrier, rapporte au gouvernement et contribue à la sécurité nationale.

UNIVERSAL OIL PRODUCTS COMPANY

CHICAGO, ILLINOIS, U.S.A.

Cable Address: "DUBBSPRO" BENTLEY CODE.

HALLIBURTON EQUIPMENT

HALLIBURTON OIL WELL CEMENTING EQUIPMENT—Trucks, pumps and mixers, developed after experience gained in cementing more than 75,000 oil wells. This equipment is qualified in every detail to serve under the most severe oil-field conditions, is not sold in the United States but is available for export sale.

MULTIPLE STAGE CEMENTING EQUIPMENT—Permits, in one continuous operation, the placing of two or more batches of cement at predetermined levels behind the casing.

FULL-HOLE CEMENTING EQUIPMENT—A modern method of cementing combination strings. "Full Hole" means a full-size hole in the productive formation. Gives the operator (1) the same drainage surface in the sand but with considerably less investment in the well; or (2) up to 60 per cent greater drainage surface and 30 per cent greater screen area than in reduced hole practice. Used with HOWCO CEMENT WASH PIPE LINING in conjunction with Combination Strings, it provides a mechanical means of establishing circulation through entire length of combination string.

HOWCO MEASURING DEVICE—For measuring depth of wells and running crooked hole surveys or instruments for bottom-hole pressures.

HOWCO TESTER—A simple method of testing the productivity of formations.

HOWCO FLOATING EQUIPMENT—Was designed to provide ample floating strength and efficient guiding for even the longest strings of casing and to provide a new note of cementing clearance, offering minimum resistance to establishing circulation and to flow of cement. It also drills out readily.

ОБОРУДОВАНИЕ HALLIBURTON ДЛЯ ЦЕМЕНТАЦИИ СКВАЖИН. — Это оборудование состоит из грузовиков, насосов, мешалок и пр. механизмов, разработанных на основании опыта, полученного при цементации более 75.000 нефтяных скважин. Каждая деталь установки отличается высоким качеством, необходимым для работы в чрезвычайно тяжелых условиях, существующих на нефтяных промыслах. Установки фирмы HALLIBURTON не продаются в США, однако фирма продает их для экспорта.

МНОГОСТУПЕНЧАТОЕ ЦЕМЕНТИРОВОЧНОЕ ОБОРУДОВАНИЕ. — Этой установкой можно произвести одной непрерывной операцией две или более затрубных цементных заливок на заранее выбранных глубинах.

ОБОРУДОВАНИЕ ДЛЯ ЦЕМЕНТАЦИИ ПОЛНОЙ ПОПЕРЕЧНОЙ ПЛОЩАДИ СКВАЖИНЫ. — Новейший метод для цементации комбинированных колонн труб. "Полная площадь" означает скважину полного диаметра в продуктивных грунтах. Этот метод дает возможность оператору: (1) получить ту-же дренажную площадь песков, но с меньшими затратами; или (2) получить до 60 процентов большую площадь дренажа и до 30 процентов большую перфорированную площадь, чем это достигается при методах, дающих уменьшение поперечного сечения скважины. Применяя при этом методе ВТУЛКИ HOWCO ДЛЯ ПРОМЫВКИ ЦЕМЕНТА, получается возможность поддерживать циркуляцию по всей длине комбинированной колонны труб.

ИЗМЕРИТЕЛЬНАЯ УСТАНОВКА HOWCO служит для измерения глубин и для определения искривлений скважин. Она имеет инструменты для определения давлений на дне скважины.

ОБОРУДОВАНИЕ HOWCO ДЛЯ ИССЛЕДОВАНИЯ ГРУНТОВ дает упрощенный метод для испытания продуктивности формаций.

ПЛАВАЮЩЕЕ ПРИСПОСОБЛЕНИЕ HOWCO. Оно сконструировано так прочно, что дает возможность поддерживать в плавающем состоянии и правильно направлять даже самые длинные колонны обсадных труб. Получается максимальная сопротивляемость циркуляции и потоку цемента, который не может проникнуть в колонну обсадных труб. Это приспособление можно быстро и легко высверлить.

EQUIPO HALLIBURTON PARA LA CEMENTACION DE POZOS—Camiones, bombas y hormigoneras, desarrollados después de mucha experiencia en la cementación de más de 75.000 pozos petrolíferos. Este equipo está acondicionado, desde todo punto de vista, para servir bajo las condiciones más severas que se presenten en los yacimientos. No se vende en los Estados Unidos, pero se ofrece a venta en el extranjero.

EQUIPO DE CEMENTACION DE MULTIPLE ETEPA—Permite, en una operación continua, la colocación de dos o más cargas de hormigón a niveles predeterminados detrás del revestimiento o cubierta.

EQUIPO DE CEMENTACION DE AGUJERO COMPLETO—Un método de cementación moderna. "Agujero completo" significa un agujero de tamaño completo en la formación productiva. Da al explotador (1) la misma superficie de drenaje en la arenilla, pero con una inversión mucho menor en el pozo, o (2) hasta 60% más superficie de drenaje y 30% se superficie de filtración que por los métodos de agujero reducido. Empleado con el REVESTIMIENTO DE CEMENTO DE TUBO DE LAVADO HOWCO, en conjunción con sistema de combinación, provee un medio mecánico de establecer circulación por la longitud completa del sistema combinado.

APARATO DE MEDICION HOWCO—Para medir la profundidad de los pozos y hacer estudios de desviación o guiar instrumentos para determinar las presiones del fondo de los agujeros.

ENSAYADOR HOWCO—Un método sencillo para ensayar la productividad de la formación.

EQUIPO DE FLOTACION HOWCO—Ha sido proyectado para proveer amplia fuerza de flotación y eficaz guia a las más largas hileras de revestimientos o cubiertas y para asegurar un notable espacio de cementación, que ofrezca una resistencia mínima a la circulación establecida y al flujo del cemento. Se perfora con facilidad.

EQUIPEMENT HALLIBURTON POUR LA CEMENTATION DES PUITS PETROLIFERES—Camions, pompes et mélangeurs, étudiés et construits à la lumière d'une expérience acquise dans la cémentation de plus de 75.000 puits pétrolifères. Cet équipement est qualifié, à tous égards, pour fonctionner dans les conditions d'emploi des plus dures sur les champs pétroliers. Il ne se vend pas aux Etats-Unis, mais se fournit à l'exportation.

EQUIPEMENT DE CEMENTATION A ETAGE MULTIPLE—Permet, en une seule opération continue, de placer deux charges de ciment, ou plus, à des niveaux déterminés à l'avance derrière le revêtement du puits.

EQUIPEMENT DE CEMENTATION DE TROU COMPLET—Une méthode moderne pour la cémentation en combinaison. "Trou Complet" veut dire un trou complet dans la formation d'exploitation. Donne à l'exploitant (1) la même surface de drainage dans le sable, mais exige une immobilisation de capital beaucoup moins élevée dans le puits; ou (2) jusqu'à une surface de drainage 60% plus grande et une surface de filtration 30% plus grande que dans l'exploitation réduite par trous isolés. S'emploie avec le REVETEMENT DE CIMENT DE TUYAU DE LAVAGE HOWCO, en combinaison avec les Rangés d'exploitation combinés; il procure un moyen mécanique permettant d'établir la circulation sur l'étendue entière du système de combinaison.

INSTRUMENTS DE MESURE HOWCO—Servent à mesurer la profondeur des puits et à étudier les déviations des puits—Aussi instruments pour mesurer les pressions au fond des puits.

HOWCO—Fournit une méthode simple pour déterminer la productivité des diverses formations géologiques.

EQUIPEMENT DE FLOTTAISON HOWCO—A été conçu et construit en vue d'assurer une ample force de flottaison et de fournir un guide efficace même aux plus longs modèles de revêtements de puits, ainsi que pour assurer un espace suffisant pour la cémentation, offrant ainsi un minimum de résistance à l'établissement de la circulation et à l'écoulement du ciment. Il permet aussi de forer avec facilité.

Descriptive literature on Halliburton Equipment will be furnished on request.

HALLIBURTON OIL WELL CEMENTING CO.

DUNCAN, OKLAHOMA, U.S.A.

EAGLE PRODUCTS FOR OIL AND GAS INDUSTRY

Eagle Insulation: Various types available for complete range of temperatures. Particularly appropriate for oil and gas plants is Eagle "66" Insulating Cement. Extremely efficient up to 1,600° F. Can be applied on any surface by unskilled workmen. Coverage is 50 sq. feet 1 inch thick per 100 lbs.

Eagle Sublimed Blue Lead and Eagle Red Lead: Both excellent materials for protecting metal surfaces against rust. Sublimed Blue Lead is especially recommended because it gives longer protection, costs less.

Eagle Oil Refiners Litharge: Finely ground and is commercially 100% PbO. Completely and quickly soluble in caustic. Generally accepted as the standard quality product for manufacturing Doctor solution.

Eagle White Lead: Reduces painting costs because it lasts longer; also because it wears down smoothly, thus eliminating expensive burning and scraping treatment before new paint can be properly applied.

Изоляция Eagle изготовляется всевозможных типов, пригодных для разнообразных температур. Изоляционный цемент Eagle «66» особенно пригоден для нефтеперегонных и газовых заводов, он весьма стоек при температурах до 1600° Фаренгейта. Неквалифицированный рабочий может покрыть этой изоляцией любую поверхность, причем для поверхности в 50 кв. фут., при толщине в 1" требуется 100 англо-фунтов изоляции.

Высококачественные свинцовые краски Eagle Blue Lead и Eagle Red Lead (сурик) являются прекрасными материалами для предохранения металлов от ржавения. Высококачественный Blue Lead особенно рекомендуется, так как он держится дольше и стоит дешевле.

Глет Eagle для очистки нефтепродуктов поставляется в виде тонкого порошка и представляет собою технически чистый 100% PbO, быстро и вполне растворимый в каустической соде. Этот продукт является стандартным при изготовлении Докторского Раствора.

Eagle White Lead (свинцовые белила) уменьшает расход по окраске, так как последняя держится дольше и изнашивается равномерно. Это сберегает расходы, связанные с выжиганием и с обдиркой старой краски перед новой окраской.

Aislamiento Eagle: Hay varios tipos para cubrir una escala completa de temperaturas. Particularmente bueno para los establecimientos de petróleo y gas es el cemento aislante Eagle "66". Es extremadamente efectivo hasta una temperatura de 1600 grados Fah. Puede aplicarse sobre cualquier superficie por obrero sin experiencia. Su recubrimiento es de 50 pies cuadrados, a una pulgada de espesor, con 100 libras de material.

El plomo azul sublimado Eagle y el plomo rojo Eagle, son ambos materiales excelentes para proteger superficies metálicas contra el moho. El plomo azul sublimado se recomienda en especial, a causa de que dura más y cuesta menos.

Litargirio Eagle para refinadores de petróleo. Este material finamente pulverizado es PbO comercialmente puro. Se disuelve por completo y con rapidez en sosa cáustica. Se acepta universalmente como producto de fina calidad para la preparación de solución Doctor.

Plomo blanco Eagle. Reduce el costo de la pintura, a causa de que dura más, y también, por que se desgasta uniformemente, evitando así el costoso trabajo de derretirlo y alisarlo, antes de aplicar una nueva capa.

Isolants Eagle: Se fournissent en divers genres pour gamme complète de températures. Conviennent spécialement, sous forme de ciment isolant Eagle "66", aux usines à gaz et de pétrole. Très efficace jusqu'à une température de 1.600 degrés, ce ciment peut être appliqué sur n'importe quelle surface par des manoeuvres. On obtient avec ce ciment une couche de 50 pieds carrées et d'un pouce d'épaisseur.

La galène sublimée Eagle et le minium Eagle sont excellents pour protéger contre la rouille. La galène sublimée est recommandée spécialement car elle protège plus longtemps et coûte moins cher.

Litharge Eagle pour raffineries de pétrole: Moulue très fine, c'est de l'oxyde de plomb commercialement pur. S'obtient facilement en solution caustique complète. C'est le produit de qualité généralement accepté comme le produit par excellence pour fabrication de la solution dite "Doctor."

Céruse Eagle: Diminue les frais de peinture car elle dure plus longtemps et aussi parce qu'elle s'use uniformément, éliminant la nécessité des brûlages et grattages coûteux avant de pouvoir appliquer convenablement une nouvelle couche de peinture.

THE EAGLE-PICHER LEAD CO.

CINCINNATI, OHIO, U. S. A.

PRODUCERS OF LEAD, ZINC AND ALLIED PRODUCTS.

Main Office and Plant of Hughes Tool Co., Houston, Texas, U. S. A.

MANUFACTURERS OF SPECIALIZED OIL INDUSTRY TOOLS

Rock Bits—Core Bits—Tool Joints—Drilling Valves—Reamers—Tubing Heads—Milling Tools, etc.

TRADE-MARK

TRADE-MARK

The Hughes Trade-Mark on your Drilling Tools is your assurance of Safety, Dependability and better Performance. If the Trade-Mark could speak to you, it would say:

"I stand for that which is fine in specialized oil field tools. I represent the results of more than two decades of study, development, research and experience in laboratory, shop and field. Throughout the years to come I shall continue to represent that which is best in oil field drilling tools. I never appear on any tool until laboratory and field tests have proven it the best of its kind.

"Through the years, fat years and lean, my high standards have not been lowered. I have helped to save the Oil Industry millions of dollars in the ceaseless quest for oil. I represent increased efficiency and effectiveness of rotary drilling, safety and dependability in well control equipment."

Prove these statements to your own advantage by using Hughes Tools.

Клеймо Hughes на бурильных инструментах гарантирует Вам безопасность, надежность и продуктивность работы. Если бы это клеймо могло говорить то оно сказало бы Вам следующее:

«Мною отмечается все лучшее, имеющееся среди специальных инструментов для нефтяных промыслов. Я представляю собою результат изучений, усовершенствований, исследований и опытов как заводских, так и промысловых, производимых втечение более 20-ти лет. И в грядущие годы я буду олицетворять все лучшее, что имеется среди бурильных инструментов. Я никогда не буду проставлено им на одном инструменте, пока лабораторные исследования и испытания на промыслах не докажут, что инструмент этот является наилучшим в своем роде».

«Из года в год, как во дни благосостояния, так и во дни депрессии, мой стандарт всегда стоял на должной высоте. Благодаря моей помощи, нефтяная индустрия, в ее непрерывных поисках нефти, сэкономила миллионы долларов. Я гарантирую собою повышенную производительность и эффективность вращательного бурения, а также безопасность и надежность оборудования, применяемого для контроля скважин».

Проверьте это заявление для своей же пользы применением инструментов Hughes.

La marca comercial Hughes en las herramientas perforadoras es la certeza de Seguridad, Confianza y Mejor funcionamiento. Si la marca comercial pudiera hablar a Ud. le diría:

"Hago frente a lo que es fino en herramientas especiales para campos de petróleo. Represento el resultado de más de dos décadas de estudio, perfeccionamientos, investigaciones y experiencias de laboratorio, taller y en el campo. Durante todos los años venideros continuaré representando lo que es mejor en herramientas perforadoras para campos de petróleo. Nunca me presento en una herramienta hasta que en el campo y en el laboratorio he demostrado que es lo mejor de su clase.

"En el transcurso de los años, prósperos y de depresión, mis altas normas no han desmerecido. He ayudado a que la industria del petróleo ahorre millares de dolares en la busca innecesaria de petróleo. Represento aumento en la eficacia y efecto de la perfección rotatoria, regularidad y confianza en los equipos para pozos."

La marque de fabrique Hughes gravée sur vos Outils de Forage est pour vous une garantie de sécurité, de qualité et de meilleur rendement. Si cette marque de fabrique pouvait vous parler, elle vous dirait:

"Je représente la qualité supérieure parmi les outils spécialisés d'exploitation pétrolifère. Je suis le résultat de plus de deux décades de recherche, d'étude, de mise au point et d'expérience réalisées au laboratoire, à l'usine et au chantier. Dans les années à venir, je vais continuer de représenter ce qu'il y a de mieux en outils de forage de champs pétrolifères. Je ne suis jamais gravé sur un outil à moins que des essais de laboratoire ou de chantier n'aient prouvé qu'il mérite d'être considéré comme le meilleur instrument de son genre.

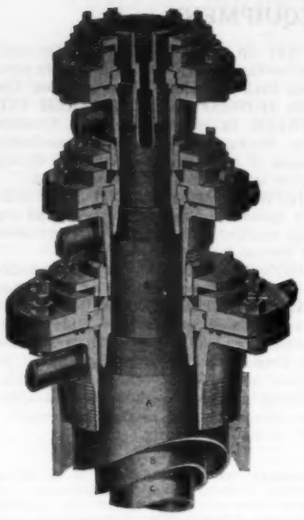
"Au cours des années passées, autant années prasses qu'années maigres, mon standard élevé n'a jamais été abaissé. J'ai contribué à épargner à l'Industrie Pétrolifère des millions de dollars dans la recherche continue de champs pétroliers nouveaux. Je représente une efficience accrue et une efficacité supérieure du forage rotatif; je représente encore la sécurité et la qualité pour l'équipement de contrôle des puits."

Persuadez-vous de la stricte exactitude de ces prétentions, dans votre intérêt même, en faisant usage des Outils Hughes.

HUGHES TOOL COMPANY

Main Office and Plant:

HOUSTON, TEXAS, U.S.A.



RECTORHEAD

The RECTORHEAD, manufactured in three types for 6,000, 3,000 and 1500-pound test pressures offers advantages not found in conventional casing heads. The split rings, which hold the recessed coupling, are beveled on bottom to make a metal to metal seat against the bottom flange which is screwed onto surface pipe. The top flange serves as the packing unit, so designed that the head is repackable under highest pressure. The 6,000-pound head is made of hammer forged steel, and the 3,000 and 1,500-pound types are made of high grade cast steel.

Головки обсадных труб марки RECTORHEAD изготовляются трех типов: — для пробных давлений в 6000, 3000 и 1500 англо-фунтов. Они имеют достоинства, которые не встречаются в других головках для обсадных труб. Разводные кольца, которые удерживают муфты с выточками, скошены снизу, что создает контакт металла с металлом у нижнего фланца, привернутого к наружному концу обсадной трубы. Верхний фланец служит как сальник, причем конструкция его допускает перемену набивки при самых высоких давлениях. Головка на пробное давление в 6000 англо-фунтов сделана из кованной стали, а головки на пробное давление в 3000 и 1500 англо-фунтов изготовляются из высококачественной литой стали.

La cabeza RECTORHEAD, construida en tres tipos, para presiones de ensayo de 6.000, 3.000 y 1.500 libras, ofrece ventajas que no se presentan en las cabezas de revestimiento de tipo ordinario. Los anillos hendidos, que sujetan el acoplamiento retraído, van achaflanados al fondo, para formar un asiento completamente metálico contra el reborde inferior, el cual va atornillado en el tubo exterior. El reborde superior sirve de unidad de empaquetadura y por su construcción permite instalar nueva empaquetadura en la cabeza bajo las más altas presiones. La cabeza de 6.000 libras se hace de acero forjado a martillo y los tipos de 3.000 y 1.500 libras se hacen de fino acero fundido.

La RECTORHEAD, fabriquée en trois types, pour des pressions d'essai de 6.000, 3.000 et 1500 lbs.; offre des avantages qu'on ne trouve pas aux têtes de revêtements de forage courantes. Les bagues fendues, qui tiennent le raccord encastré, sont biseautées à la base afin de créer un siége à métal sur métal contre la bride de base qui est vissée sur le tuyau de surface. La bride supérieure sert de groupe d'étoupage, et la construction en est telle qu'on peut recharger la tête de presse-étoupe sous les plus fortes pressions. La tête de 6000 lbs. est en acier forgé au pilon, et celles de 3000 et de 1500 lbs. sont en acier coulé de qualité supérieure.

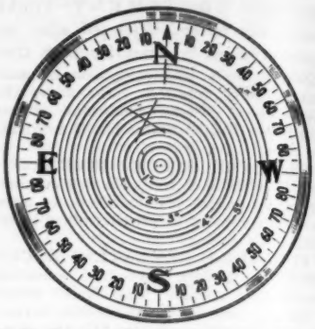
RECTOR WELL EQUIPMENT CO., INC.

RECTOR WELL EQUIPMENT CO., INC.

Fort Worth, Texas, U.S.A.

Export: L. C. Klein,
285 Madison Ave., N. Y. C.

UNDERGROUND SURVEY INSTRUMENT



A 5° Record Disc giving a reading of both inclination and direction in open hole.

Anderson photo-record magnetic single-shot survey instrument provides a means of measuring with the highest degree of accuracy both the inclination and direction of a well at any time and any depth in open hole. It is run into the well on a wire line and a survey reading requires but little longer than to run the bailer.

The measurements of inclination and direction are automatically photographed on metal rimmed sensitized discs which are loaded into the instrument in daylight and developed within four minutes on the derrick floor. No knowledge of photography or mathematics is required. The whole operation is very simple.

The instrument and record discs are shown in our advertisement in this issue.

Магнитный фото-рекордирующий аппарат ANDERSON'a для одиночных снимков является инструментом, при помощи которого можно в любое время и на любой глубине измерить с чрезвычайной точностью как уклон, так и направление уклона скважины. Он спускается в скважину на канате, причем получение и просмотр записи отнимает немного больше времени, чем требуется для спуска желонки.

Размер отклонения и направление автоматически фотографируются на чувствительном диске с металлическим ободом. Эти диски заряжаются в аппарат при дневном свете и проявляются на полу буровой втечение четырех минут. При этом не требуется знаний фотографии или математики. Весь процесс чрезвычайно прост.

Инструмент и диски изображены в нашем об'явлении, напечатанном в этом номере.

El instrumento Anderson para reconocimiento topográfico, por procedimiento fotográfico magnético, representa un medio de medir, con el más alto grado de exactitud, tanto la inclinación como la dirección de un pozo, en cualquier momento y a cualquiera profundidad, por el agujero abierto. Se introduce en el pozo con un cable de alambre y la lectura del reconocimiento no requiere mas tiempo que su descenso.

Las medidas de inclinación y dirección quedan automáticamente fotografiadas sobre discos sensibilizados provistos de bordes metálicos, que se cargan en el instrumento a la luz del día y se desarrollan dentro de cuatro minutos sobre la misma plataforma del malacate. No hay necesidad de conocimientos de fotografía y matemáticas. Todo el trabajo es sumamente sencillo.

El instrumento y los discos registradores se muestran en nuestro anuncio en el presente número.

L'instrument d'arpentage magnétique Anderson à photos permet de mesurer d'un seul coup et avec précision l'inclinaison et l'orientation des puits de toute profondeur. On le descend à l'aide d'un fil et les degrés peuvent être déterminés en un instant.

Les mesurages d'inclinaison et d'orientation sont automatiquement photographiés sur des disques sensibles cerclés de métal que l'on place dans l'instrument en plein jour et que l'on révèle en quatre minutes à pied d'oeuvre. Pas besoin de s'y connaître en photographie ni en mathématiques. L'opération est extrêmement simple.

Cette annonce présente l'instrument et les disques photographiques.

Write For Further Details

ALEXANDER ANDERSON, Inc.

Fullerton, California, U.S.A.

TRANSIT PUMPS
The Oil Industry Pumps

For more than fifty years TRANSIT PUMPS have been built especially for all divisions of the oil industry. Between 1880 and 1913, as part of the Standard Oil Company of New Jersey, this company pioneered in the development of pumps for oil field, pipe line and refinery work.

In times of great strides forward the oil industry has always turned to TRANSIT to supply new pumping equipment to meet new conditions and advances in the industry. Our familiarity with the oil industry and our knowledge of its problems have been invaluable to us.

We believe that pumps to handle oil should be built better, with closer attention to details, than is necessary for ordinary pumps. And we build them that way.

There is a TRANSIT PUMP for every oil industry purpose. See our advertisement in this issue.

REFINERY PUMPS—Steam or Gas Engine Driven Hot Oil Pumps; Tar and Residuum Pumps; a pump for every refinery service.

OIL FIELD PUMPS—Pipe Line, Gathering Line and Tank Pumps.

MARINE PUMPS—Cargo Oil, Fuel Oil, Bilge and Ballast Pumps.

GENERAL SERVICE—Low Pressure, Rotary, Plunger and Power Pumps.

GAS ENGINES—Vertical and Horizontal Gas Engines; Gas Engine Driven Compressors; Steam Engine Driven Compressors.

НАСОСЫ TRANSIT изготовляются более пятидесяти лет специально для всех отраслей нефтяной промышленности. С 1880 г. по 1913 год эта фирма, как часть организации Standard Oil Company of New Jersey, была пионером по изготовлению насосов для нефтяных промыслов, трубопроводов и нефтеперегонных заводов.

В периоды быстрого прогресса, нефтяная индустрия всегда обращалась к фирме TRANSIT за новым насосным оборудованием, отвечающим новым условиям и новому прогрессу нефтяной промышленности. Наше знакомство с нефтяной индустрией и наше знание ее задач являются бесценными.

Мы думаем, что насосы, предназначенные для нефти, должны строится лучше и с более внимательным отношением к их деталям, чем обыкновенные насосы. И мы так эти насосы и изготовляем.

Для любых нужд нефтепромышленности существует соответствующий НАСОС TRANSIT. Обратите внимание на наше объявление, помещенное в этом журнале.

НАСОСЫ ДЛЯ НЕФТЕПЕРЕГОННЫХ ЗАВОДОВ — Паровые насосы и насосы работающие газом для перекачки горячей нефти; Насосы для перекачки смол и нефтяных остатков; насос для любых нужд нефтеперегонных заводов.

НАСОСЫ ДЛЯ НЕФТЯНЫХ ПРОМЫСЛОВ — Насосы для трубопроводов и отборных линий, также насосы для резервуаров.

НАСОСЫ ДЛЯ МОРСКИХ ЦЕЛЕЙ — Насосы для заполнения наливных судов нефтью, насосы для подачи мазута, насосы для трюмов и балластные насосы.

НАСОСЫ ДЛЯ ОБЩИХ ЦЕЛЕЙ — Насосы низкого давления, центробежные плунжерные и приводные насосы.

ГАЗОВЫЙ ДВИГАТЕЛИ — Вертикальные и горизонтальные газовые двигатели; Компрессоры работающие от газомоторов; Компрессоры приводимые в движение паровыми машинами.

Desde hace más de cincuenta años, las bombas Transit se han construido especialmente para todas las divisiones de la industria del petrfileo. Entre 1880 y 1913, como parte de la Standard Oil Company of New Jersey, esta compañia fué la primera en desarrollar bombas especiales para campos petrolliferos, lineas conductores y refinerias.

En tiempos de grandes progresos, la industria petrolera siempre ha dependido de la Transit, para obtener nuevos equipos de bomba para satisfacer las nuvas condiciones y requisitos del trabajo. Nuestro profundo conocimiento de la industria del petrfileo, y de todos sus problemas y necesidades, nos ha sido de valor incalculable.

Creemos que las bombas para el manejo de petróleo, han de construirse mejor, con mayor atención a los detalles, que los modelos corrientes para servicios ordinarios. Y es así como las construimos.

Ha una bomba Transit para cada servicio de la industria. Sirvase ver nuestro anuncio en esta revista.

Bombas para Refinerias—Bombas de petróleo caliente accionadas por motor de vapor o de gas; bombas para alquitrán y residuos; un tipo de bomba para cada trabajo de refinería.

Bombas para Campos Petroliferos—Para linea de tubería, para linea recolectora y para tanques.

Bombas Marinas—Para petróleo de cargamento, para petróleo de combustible, y bombas de achicar y de balasta.

Bombas para Servicio General—De baja presión, rotativas, de émbolo y de fuerza mecánica.

Motores de Gas—En tipos verticales y horizontales; compresores accionados por motores de gas y compresores accionados por motores de vapor.

Les POMPES TRANSIT se construisent spécialement depuis plus de cinquante ans pour toutes les divisions de l'industrie pfitrolière. Alors que'elle faisait partie de la Standard Oil Company of New Jersey, notre compagnie fut la première à perfectionner, entre 1880 et 1913, des pompes pour champs pétrolifères, pour conduites et pour raffineries.

Pendant toutes les périodes de grands progrès, l'industrie du pétrole s'est adressée à TRANSIT pour la fourniture de nouveau matériel de pompage répondant aux conditions nouvelles et aux progrès de l'industrie. Notre connaissance de l'industrie pétrolière et de ses problème nous a été d'une utilité inappréciable.

Nous sommes d'avis que les pompes à pétrole demandent à être mieux construites, avec plus de soins donnés aux détails que ce n'est nécessaire pour les pompes ordinaires. Et nous fabriquons nos pompes en conséquence.

Il existe une POMPE TRANSIT pour chaque besoin de l'industrie du pétrole. Voir notre annonce dans ce numéro.

POMPES pour RAFFINERIES—Pompes à pétrole à commande par machine à vapeur ou par moteur à gaz; pompes pour goudron et residus; pompes pour tous les besoins de raffinerie.

POMPES POUR CHAMPS PETROLIFERES—Pompes pour conduites, pompes pour conduites collectrices et pompes pour réservoirs.

POMPES MARINES—Pompes pour pétrole de chargement, pour pétrole combustible, pour le lest, et de cales.

SERVICE GENERAL—Pompes à basse pression, rotatives, à plongeur et à force motrice.

MOTEURS A GAZ—Moteurs à gaz horizontaux et verticaux; compresseurs à commande par moteur à gaz et compresseurs à commande par machine à vapeur.

Write for catalogs and illustrated bulletins on any of our products.

NATIONAL TRANSIT PUMP AND MACHINE CO.
OIL CITY, PENNSYLVANA, U. S. A.

Foreign Licensee: Societe Alsacienne De Constructions Mecaniques, Mulhouse, France. Paris:—32, Rue De Lisbonne.

STA-VOL-ENE
STABILITY ◆ VOLATILITY ◆ ENERGY
IT'S A "NATURAL"

The officers of this company have been active in the natural gasoline industry since its inception. Years ago they realized that natural gasoline could be utilized by foreign refiners and blenders to the same advantage as by manufacturers in the United States if only it could be transported safely and economically in bulk cargo lots. They were accordingly among the first of the independent manufacturers to adopt high pressure fractionation which enabled them to deliver at distant foreign and domestic ports a straight, unblended natural gasoline of an exceptionally high effective volatility and high octane number with no unusual transportation losses or hazards.

During the past year they have added to their production and terminal facilities to an extent which makes them a most important factor in supplying the world wide demand for natural gasoline.

Their trade-mark STA-VOL-ENE derived from "Stability, Volatility and Energy" is well known among refiners the world over.

Руководители фирмы Hanlon-Buchanan Inc. специализировались в области производства бензина из газа со дня зарождения этой промышленности. Много лет тому назад они пришли к убеждению, что бензин из газа мог бы быть использован заграницей нефтеперегонными заводами и складчиками с таким же успехом, как на нефтеперегонных заводах в Соединенных Штатах при условии организации безопасного и экономного транспорта наливом.

Hanlon-Buchanan Inc. была одной из первых фирм среди независимых американских заводчиков, которые ввели фракционирование под высоким давлением; это дало им возможность доставлять в дальние заграничные и отечественные порты бензин из газа без всяких примесей, обладающий весьма высокой летучестью и высокой анти-детонирующей способностью, и, при том, безопасно и без налишних потерь при транспорте. Втечение прошлого года фирма Hanlon-Buchanan Inc. усилила свое производство и емкость своих бензинохранилищ и сделалась, благодаря этому, одной из главных в международной торговле в области бензина из газа. Торговая марка STA-VOL-ENE составлена из сокращенных слов "Stability, Volatility, and Energy что означает постоянство состава, летучесть и мощность.. Торговая марка STA-VOL-ENE известна нефтеперегонным заводам всего мира.

El personal de esta campañía ha estado en actividad en la industria de la gasolina natural desde que ésta principió Desde hace varios años comprendieron que la gasolina natural podría utilizarse por los refinadores y mezcladores extranjeros con iguales ventajas que los fabricantes de la Estados Unidos, con sólo que se pudiera transportar segura y económicamente en grandes cargamentos. Por consecuencia, nuestro personal ha estado entre los primeros manufactureros independientes que han adoptado el fraccionamiento a alta presión, permitiéndoles entregar en puertos lejanos del extranjero y en puertos del país una gasolina sin mezcla natural de volatilidad execionalmente efectiva y octano en número alto con perdidas y peligros de transportación no acostumbrados.

Durante el año pasado han agregado en su producción facilidades terminales en tal extensión que las hace un factor importante en el suministro mundial de gasolina natural .

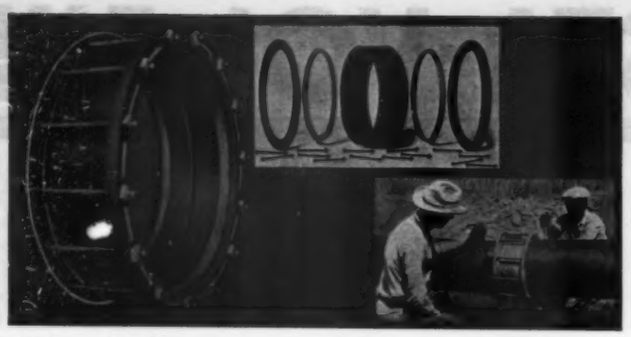
Su marca de fábrica es STA-VOL-ENE palabra derivada de "Estabilidad" "Volatilidad" y "Energía" marca bien conocida entre los refinadores de todo el mundo.

Les dirigeants de cette compagnie se sont intéressés à l'industrie de l'essence naturelle dès son établissement. Il y a bien des années déjà qu'ils se sont aperçu que l'essence naturelle pouvait être utilisée par les raffineurs et les mélangeurs de pétrole à l'étranger avec le même avantage que les fabricants des Etats-Unis, à condition que l'on puisse la transporter économiquement et en toute sécurité par lots importants en vrac. Ces industriels ont donc été parmi les premiers fabricants indépendants à adopter le fractionnement à haute pression qui leur a permis de faire la livraison dans les ports étrangers éloignés et dans les ports nationaux d'une essence naturelle pure, sans mélange, d'une volatilité exceptionnellement elevée et d'un haut coefficient octane, n'entrainant aucun risque ou perte à caractère exceptionnel durant son transport. Au cours de l'an dernier, ces industriels ont introduit dans leur production des facilités de transport comportant des embranchements à leurs usines, qui constituent un facteur essentiel pour satisfaire la demande mondiale en essence naturelle.

Leur marque de fabrique STA-VOL-ENE, dérivée des trois mots "Stabilité, Volatilité et Energie," est bien connue de tous les raffineurs du monde.

HANLON-BUCHANAN, INC.
TULSA, OKLAHOMA, U.S.A.

Cable Address "STAVOLENE," Tulsa, Oklahoma.



DRESSER STEEL COUPLINGS
STYLE 38

Dresser Steel Couplings, Style 38, are available for joining all sizes and kinds of plain-end pipe, from ½-inch diameter to the largest diameter of pipe produced. The use of Dresser Couplings on pipe that carries oil, gas, gasoline, air, steam or water assures uninterrupted service at all pressures. Dresser Gaskets that have been proved by years of actual service are available for each kind of service.

It is very easy to join two lengths of pipe with a Dresser Coupling. One follower ring and one rubber gasket are slipped over each pipe-end. One middle ring goes in between. Then these parts are brought together. Bolts are inserted and drawn up evenly all around. This completes a joint that will remain permanently and absolutely tight.

Throughout the world, more than 100,000 miles of plain-end pipe have been joined with Dresser Couplings. These modern joints are the product of the world's largest and oldest manufacturer of couplings, clamps, sleeves and fittings for pipe lines. Write for information about the Dresser representative nearest to you.

Стальные фланцы Dresser типа 38 пригодны для соединения всевозможных труб с гладкими концами, начиная от ½ д. в диаметре и до самых больших размеров, имеющихся на рынке. Трубопроводы для подачи нефти, газа, газолина, пара или воды, снабженные фланцами Dresser, работают надежно и бесперебойно при любых давлениях. Фланцы Dresser, испытанные втечение многих лет в действительной службе, изготовляются для любых условий работы.

При помощи фланцев Dresser очень легко соединить между собою две трубы. На каждый конец трубы надевается одно кольцо и одна резиновая прокладка. Одно промежуточное кольцо устанавливается между ними. Затем эти части соединяют между собою болтами, равномерно подтягивая их по окружности. Это дает постоянное и надежное соединение.

На всем земном шаре имеется более 100,000 миль трубопроводов из труб с гладкими концами, соединенных между собою фланцами Dresser. Эти фланцы изготовляются самым большим и самым старым фабрикантом в мире, который также производит хомуты, муфты и прочную арматуру для трубопроводов. Справтесь о местонахождении ближайшего представителя фирмы Dresser.

Los Acoplamiento Dresser de acero, Estilo 38, sirven para unir tubos de extremidades sencillas, de todos los diámetros y de todas clases, desde los de ½ pulgada hasta los de diámetro más grande. Empleando Acoplamientos Dresser en tuberías que llevan petróleo, gas, gasolina, aire, vapor o agua, queda asegurado el servicio sin interrupción a todas las presiones. Las empaquetaduras Dresser que han sido experimentadas por largos años de servicio las hay disponibles para toda clase de servicios.

Es muy fácil unir dos tubos con el Acoplamiento Dresser. Se introduce un anil¹o y y una empaquetadura de caucho en cada una de las extremidades que se desea unir. Un anillo intermedio va entre los dos. Después se unen ambas partes, se insertan los pernos y se aprietan por parejo alrededor. Así queda terminada la unión, que será permanente y absolutamente estanca.

En todo el mundo más de 100.000 millas de tubos de extremidades sencillas han sido unidos con Acoplamientos Dresser. Estas uniones modernas son el producto de los más grandes manufactureros del mundo, de acoplamientos, grapas manguitos, y avíos para tuberías. Escriba preguntando quien es el representante Dresser más próximo de Ud.

Les Accouplements d'acier Dresser, Style 38, servent à joindre les tubes à extrémités unies de toutes dimensions et de tous genres, à partir d'un diamètre d'½ pouce jusqu'au plus grand diamètre fabriqué. L'emploi d'Accouplements Dresser sur du tubage destiné au transport de pétrole, de gaz, d'essence, d'air, de vapeur ou d'eau, assure un service continu sous toutes les pressions. Les joints Dresser qui ont fait leur preuves au cours de nombreuses années de service sont disponibles pour les services les plus divers.

Il est très facile de joindre deux longueurs de tubage au moyen d'un Accouplement Dresser. On introduit un anneau et un joint de caoutchouc à chaque extrémité du tube. On place un anneau central entre deux. On rapproche alors ces parties l'une de l'autre. On insère les boulons et on les serre uniformément tout autour. On réalise ainsi un joint permanent qui restera strictement étanche.

Dans le monde entier, plus de 100.000 milles de tubage à extrémité unie ont été joints au moyen des Accouplements Dresser. Ces joints modernes sont le produit du plus grand et du plus ancien fabricant du monde en accouplements, brides, manches et accessoires pour conduites. Demandez-nous le nom du représentant Dresser le plus proche de votre établissement.

We will be pleased to send additional information on the complete line of Dresser Couplings if you write to us.

S. R. DRESSER MANUFACTURING CO.
BRADFORD - - - - - - PENNSYLVANIA, U.S.A.

TIMKEN ALLOY STEEL REFINERY TUBES

Timken alloy steel refinery tubes are produced by the world's largest manufacturers of alloy steel seamless tubing. They are made in various standard and special analyses for elevated temperature requirements and corrosion resistance in stills, heat exchangers and other types of refinery equipment.

Timken refinery tubes embody over seventeen years of tube-making experience. The Timken metallurgical and manufacturing staffs are well-known for their progressiveness in the technique of tube making. Timken production facilities are extensive and complete, including electric and open hearth furnaces with a capacity of 30,000 tons of alloy steel per month, modern billet bar and tube mills and a quality control system that leaves nothing to chance.

Timken refinery tubes are available in all the usual sizes.

Трубы TIMKEN из стали специального сплава для нефтеперегонных заводов изготовляются самым крупным в мире фабрикантом бешовных труб из специальной стали. Эти трубы изготовляются из стали разных стандартных и специальных анализов, с тем чтобы противостоять высоким температурам и разъеданию при работе в печах, теплообменных аппаратах и в разных других нефтеперегонных аппаратах,

В изготовление нефтеперегонных труб вложен более чем семнадцатилетний опыт фирм. Металлурги этой фирмы и инженеры по производству труб хорошо известны своей прогрессивностью в смысле техники производства. Фирма имеет большие заводы со всем необходимым оборудованием, включая электрические и мартеновские печи общей производительностью в 30,000 тонн стали специального сплава в месяц, отделение для болванок и трубопрокатное отделение новейших типов. Все находится под строгим контролем, исключающим всякую возможность случайности.

Нефтеперегонные трубы TIMKEN изготовляются всех обычно-употребляемых размеров.

Los tubos Timken de aleación de acero para refinerías son fabricados por los manufactureros más grande del mundo de tubos sin costura de aleación de acero. Se hacen de diversas dimensiones normales, y análisis especiales para las exigencias de temperaturas elevadas, resistencia a la corrosión en los alambiques, cambios de calor y otros detalles de los equipos en las refinerías.

Los tubos Timken para refinerías contienen la experiencia de más de setenta años en la fabricación de tubos.

El personal de la metalurgia y manufactura Timken es bien conocido por su afán de progresar en la técnica de la manufactura de tubos. Las facilidades Timken para la producción son extensas y completas, incluyendo altos hornos y hornos eléctricos con capacidad para 30.000 toneladas de aleación de acero por mes; laminadoras modernas para pletinas y barras; y un sistema regulador de la calidad que nada deja al azar.

Hay disponibles tubos Timken para refinerías, de todas las dimensiones acostumbradas.

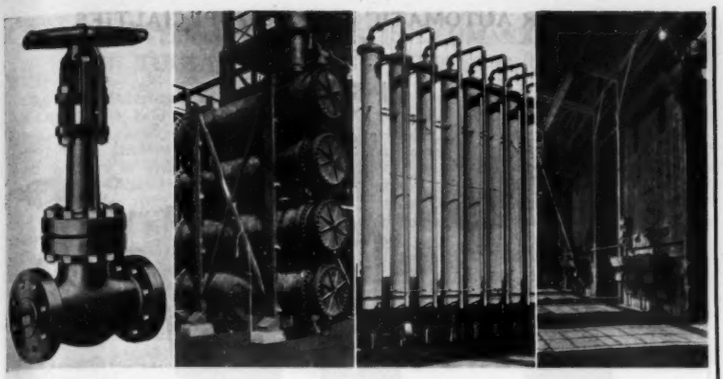
Les tubes en acier spécial Timken pour raffineries sont produits par les plus importants fabricants au monde de tubes sans soudure en acier spécial. Ils sont faits conformément à divers étalons et d'après des analyses spéciales pour les besoins de la résistance aux températures élevées et à la corrosion dans les alambics, les échangeurs de chaleur et autres genres de matérial de raffinerie.

Les tubes Timken pour raffineries représentent plus de dix-sept années d'expérience dans la fabrication des tubes. Les ingénieurs métallurgistes et les techniciens en matière de fabrication de la maison Timken jouissent d'une excellente réputation pour leur technique avancée dans le domaine de la fabrication des tubes. La maison Timken dispose de facilités de production exceptionnelles et complètes qui comprennent des fours électriques et des fours Siemens-Martin d'une capacité de production mensuelle de 30.000 tonnes d'acier spécial, des aciéries modernes pour la production de l'acier spécial en lopins, des usines de tubes et un système de contrôle de la qualité qui ne laisse rien au hasard.

Les tubes Timken pour raffineries se fournissent en toutes les grandeurs courantes.

We would be pleased to send additional information upon request.

THE TIMKEN STEEL AND TUBE COMPANY
CANTON, OHIO, U.S.A.



DROP FORGED STEEL VALVES & FITTINGS | HEAT EXCHANGERS | STILLS AND TOWERS | WATER TUBE BOILERS

VOGT PRODUCTS FOR THE REFINERY

Drop forged steel Valves, Fittings and Flanges are available in sizes, types and materials best suited for services including high pressures, high temperatures, corrosion and erosion.

Stills, Towers and pressure vessels in endless variety are manufactured of fusion welded or riveted construction.

Heat Exchangers for high pressure or vacuum service, with fixed or removable tube bundles, may be had of cast or welded all steel construction.

Other Vogt products include Water Tube Boilers of many types and sizes, Absorption and Compression Refrigerating Systems for temperatures as low as minus sixty to minus seventy Fahrenheit, wax plant equipment, etc.

Descriptive literature may be had upon request.

Фирма изготовляет стальные кованые задвижки, вентили, фитинги и фланцы по размерам, типам и материалам наиболее пригодные для самых разнообразных условий работ, включая высокие давления, высокие температуры и раз'едающие свойства жидкостей.

Фирма также изготовляет всевозможного вида трубчатки, колонны и сосуды, работающие под давлением, как сварной, так и клепанной конструкции.

Теплообменные аппараты как для высоких давлений, так и работающие при вакууме, с укрепленными или с'емными батареями трубок, изготовляются фирмой из литой стали, или стальной сварной конструкции.

Кроме того фирма VOGT изготовляет следующие продукты: водотрубные котлы многочисленных типов и размеров, абсорбционные и компрессорные холодильные системы для столь низких температур как минус 60 и минус 70 градусов по Фаренгейту, оборудованные для парафиновых заводов и пр.

Каталоги высылаются по требованию.

Ofrecemos válvulas, conexiones y bridas de acero forjado a martinete, en diferentes tamaños y tipos, y en materiales adecuados a los servicios que han de prestar, incluyendo altas presiones, altas temperaturas, corrosión y erosión.

Ofrecemos también alambiques, torres y recipientes de presión, de diversos tamaños y tipos, de construcción soldada o de construcción remachada.

Nuestros cambiadores de calor para servicio de alta presión o de vacío, con grupos de tubos fijos o amovibles, se ofrecen en construcción fundida o en construcción enteramente de acero soldado.

Otros productos Vogt son: calderas tubulares de agua de muchos tipos y tamaños, sistemas de refrigeración por absorción y compresión, para temperaturas hasta de sesenta a setenta grados Fahrenheit bajo cero, equipo para fábricas de cera, etc.

A solicitud enviaremos catálogo descriptivo.

Soupapes, raccords et brides en acier matricé en dimensions, types et matières pour faire face à toutes les conditions, hautes pressions, hautes températures, corrosion et érosion.

Alambics, tours et bacs de pression de tous genres en tôle soudée à l'autogène ou rivetée.

Echangeurs de témperature pour haute pression ou vide, à faisceau tubulaire fixe ou amovible, en tôle d'acier soudée à l'autogène ou en fonte.

Autres produits Vogt: chaudières aquatubulaires de tous genres et en toutes dimensions, appareils frigorifiques à absorption et à compression donnant des températures allant jusqu'à soixante ou soixante-dix degrés Fahrenheit sous zéro, appareillage pour usines à cire, etc.

Imprimés descriptifs sur demande.

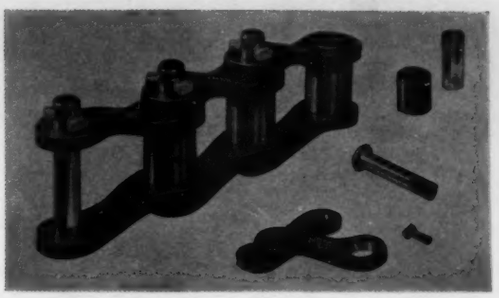
HENRY VOGT MACHINE COMPANY

(Incorporated)

LOUISVILLE, KY., U.S.A.

CABLE ADDRESS: "VOGT"

REX DEEPWELL CHABELCO



Rex Deepwell Chabelco Chain is a finely finished all steel chain used on rotary rigs.

REX GROUND PINS are accurately made of special alloy steels, carefully hardened by heat treatment. Ground after hardening to a smooth finish and extremely close tolerances.

REX GROUND BUSHINGS are seamless and hardened. They are ground to exact dimensions. Grinding of pins and bushings gives a smoother bearing surface which means longer wear, and extremely accurate pitch.

REX GROUND, SEAMLESS ROLLERS are made of special alloy steel hardened and toughened to resist wear.

REX SOLID LOCK COTTER, (In Identifying Copper Color) will not rattle loose at high speeds. Their design makes it easy to take down Rex Deepwell Chain in the field and connect up again. (Patent Pending).

REX ALLOY SIDEBARS of tough heat-treated alloy steel are die cut—giving greatest strength and least weight for high speed continuous operation. The pin and bushing holes are machine finished.

THE REX UNIT LINK, made up of these precision finished parts, is assembled by the powerful controlled force of hydraulic pressure. They have force fits at every desired point, but there is no pinching to tighten up the pin at any working surface. The accurately finished and fitted parts will always flex smoothly over the sprockets.

REX DEEPWELL No. 3 is A.P.I.-3 Chain.
REX DEEPWELL No. 4 is A.P.I.-4 Chain.

Цепь REX DEEPWELL CHABELCO изготовлена из стали и тщательно обработана. Она применяется для вращательного бурения нефтяных скважин.

ШЛИФОВАННЫЕ ПАЛЬЦЫ REX изготовлены точно и аккуратно из стали специального сплава и тщательно закалены термической обработкой. После закалки они шлифуются для получения гладкой поверхности и с соблюдением чрезвычайно малых допусков.

ШЛИФОВАННЫЕ ВТУЛКИ REX безшовны и закалены. Они отшлифованы до точных размеров. Шлифовкой пальцев и втулок достигается гладкая поверхность подшипников, а следовательно и более продолжительный срок службы. Такая шлифовка также создает цепь с чрезвычайно точным шагом.

ШЛИФОВАННЫЕ БЕЗШОВНЫЕ РОЛИКИ REX сделаны из стали специального сплава и твердо закалены, чтобы противостоять износу.

ПРОЧНЫЕ ЗАТВОРЫ ЗАМКА REX (они имеют отличительный медный цвет). Эти зазоры не ослабевают при больших скоростях. Благодаря их конструкции, цепь REX DEEPWELL легко раз'единяется в буровой вышке и вновь легко соединяется (патент заявлен).

БОКОВЫЕ ПЛАСТИНКИ REX отштампованы из прочной термически обработанной стали специального состава, — благодаря чему они имеют большую прочность при меньшем весе, что необходимо для новейших методах непрерывного бурения при больших скоростях. Отверстия для пальцев и втулок обработаны на станке.

КОМПЛЕКТНОЕ ЗВЕНО ЦЕПИ REX, составленное из этих точно обработанных частей, собирается сильным гидравлическим давлением, причем сила нажима находится под контролем. В тех местах, где это нужно, части принудительно вдавлены, но нигде на рабочих поверхностях пальцев нет ни зажимов, ни тугих соединений. Аккуратно обработанные и пригнанные части будут за все время работы плавно изгибаться по окружности передаточных шестерен.

ЦЕПЬ REX DEEPWELL № 3 является цепью 1-3 стандарта A. P. I.

ЦЕПЬ REX DEEPWELL № 4 является цепью 1-4 стандарта A.P.I. (A.P.I. означает Американский Нефтяной Институт).

La cadena Rex Chabelco Deepwell, para pozos profundos, es enteramente de acero y de un acabado muy cuidadoso. Se emplea en los aparatos rotativos para la perforación de pozos petrolíferos.

PASADORES ESMERILADOS REX: Se fabrican con suma precisión de especiales aleaciones de acero ye se endurecen mediante un tratamiento térmico exclusivo. Después de templados, se rectifican en amoladoras que les imparte un acabado muy fino y exacto.

BUJES ESMERILADOS REX: Son sin costura y endurecidos. Son también esmerilados a dimensiones exactas. El esmerilado de los pasadores y bujes asegura una superficie de contacto muy conveniente, que se traduce por mayor duración efectiva. Se obtiene también de este modo, una cadena de paso de suma precisión.

RODILLOS REX ESMERILADOS Y SIN COSTURA: Se hacen de especiales aleaciones de acero. Se templan y endurecen para resistir bien el desgaste.

CHAVETA DE CERRADURA REX MACIZA: (En el color de cobre que las identifica). No rechinan ni se aflojan en las grandes velocidades. Su construcción permite desarmar fácilmente la cadena Rex Deepwell en el campo y montarla de nuevo. (Patente pendiente).

BARRAS LATERALES REX DE ALEACIÓN: Se fabrican de especial aleación de acero, de gran tenacidad, y se tratan térmicamente, estampándose en matrices, lo que asegura una resistencia máxima y un peso mínimo, cosa ideal para la explotación moderna continua, sometida a intenso servicio. Los orificios del pasador y del buje se labran a máquina.

EL ESLABON REX: Constituído por estas piezas acabadas con tanta precisión, este eslabón se arma bajo la gran fuerza controlada de la presión hidráulic. Estos eslabones tienen ajestes de frotación dura en todos los puntos convenientes, pero no presentan ningún apriето que pueda endurecer el moximiento del pasador. Las piezas acabadas y ajustadas con suma precisión siempre pasan con suavidad por los dientes de los engranajes.

REX DEEPWELL No. 3 es la cadena A.P.I. 1-3
REX DEEPWELL No. 4 es la cadena A.P.I. 1-4

La chaine Rex Chabelco Deepwell, pour puits profonds, est une chaine tout acier d'un fini soigné, qui s'emploie sur l'appareillage rotatif dans le forage des puits pétrolifères.

GOUPILLES MEULÉES REX: Elles sont fabriquées avec une haute précision à partir d'aciers d'alliages spéciaux, et soigneusement durcies par un traitement thermique. Après le trempage, elles sont rectifiées à la meule de façon à leur donner un fini uni et à les amener à la cote, selon des tolérances très serrées.

COUSSINETS MEULÉS REX: Ils sont durcis et sans soudure. Ils sont, en outre, meulés exactement à la cote. Le meulage des goupilles et des coussinets assure une surface portante plus régulière, ce qui se traduit par une plus grande durabilité. On obtient aussi, de cette manière, une chaine d'un pas de la plus haute précision.

ROULEAUX REX MEULÉS ET SANS SOUDURE: Ils sont fabriqués à partir d'alliage d'acier spécial, trempé et recuit de façon à résister à l'usure.

CLAVETTE DE VERROUILLAGE REX MASSIVE: (Dans la couleur cuivre identificatrice) Ne se relâchera pas aux grandes vitesses et par suite ne produira pas de bruit de ferraille. Sa construction permet d'emmener facilement la chaine Rex "Deepwell" au champ de pétrole et de la raccorder de nouveau sur place (Brevet en instance).

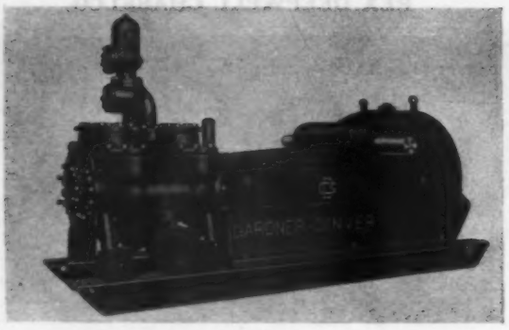
LONGERONS REX EN ALLIAGE: Ils sont fabriqués à partir d'acier spécial d'une grande ténacité, traité thermiquement, et sont découpés en matrice—ce qui assure un maximum de force et un minimum de poids pour l'exploitation moderne continue en service intense. Les trous de goupille et de palier sont usinés.

LE CHAINON D'ELEMENT REX: Constitué par ces pièces finies avec une grande précision, il est assemblé par la puissante force de contrôle de la pression hydraulique. Ces chainons ont des ajustages à frottement dur à tous les points désirables, mais ils ne présentent aucun pinçage pouvant serrer la goupille à toute surface de travail. Les pièces finies et ajustées avec une haute précision ne manquent jamais de fléchir au passage sur les pignons.

REX DEEPWELL No. 3 est la chine A.P.I. 1-3
REX DEEPWELL No. 4 est la chaine A.P.I. 1-4

CHAIN BELT COMPANY

MILWAUKEE, WISCONSIN, U.S.A.



Gardner-Denver 7¾x16 EXQ Power Pump

GARDNER-DENVER DRILLING ENGINES, PUMPS, COMPRESSORS

Because of their superior design, sturdy construction and better performance, Gardner-Denver drilling engines, pumps and compressors have won recognition and preference in oil service throughout the world.

There are three sizes of Gardner-Denver Twin Drilling Engines furnished with piston steam valves. All engines are totally enclosed, with heavily ribbed frames and unusually heavy cylinders.

Gardner-Denver Steam and Power Pumps are available in a variety of sizes and capacities to meet the requirements of mud pumping, cementing, boiler feed, gathering, and oil line service. Power pumps are furnished with flat or V-belt drive, chain drive, direct drive or top motor mounting.

Gardner-Denver manufactures a wide range of vertical and horizontal compressors, including compressors especially designed for the severe operating conditions of air and gas lift, portable compressors and Diesel engine starting compressors. See our advertisement on page 4.

Паровые машины для бурения, насосы и компрессоры фирмы GARDNER-DENVER, пользуются прекрасной репутацией и им отдают предпочтение на нефтяных промыслах всего мира. Это об'ясняется совершенством и прочностью их конструкции, а также прекрасной службой, которую они дают.

Фирма изготовляет двухцилиндровые бурильные машины трех размеров, снабженные плоскими или цилиндрическими золотниками и расчитанные для работы при давлении пара в 250 и 350 ан.-фун. Все паровые машины изготовляются совершенно закрытого типа, с рамами, усиленными тяжелыми ребрами и снабженные цилиндрами необычно тяжелого типа.

Насосы GARDNER-DENVER, как паровые, так и приводные, изготовляются разнообразных размеров и мощностей, соответствующих требованиям для подачи грязевого раствора, цементировки питания котлов, откачки из линий и для нефтепроводов. Приводные насосы изготовляются для плоских или "V"-образных ремней, для цепного привода, непосредственной передачи, или с моторами, установленными наверху.

Фирма GARDNER-DENVER изготовляет чрезвычайно разнообразные вертикальные и горизонтальные компрессоры, включая специальные компрессоры, сконструированные для тяжелых условий работ эр-лифтов и газ-лифтов, также переносные компрессоры и компрессоры для пуска в ход Дизель-моторов. Наше об'явление напечатано на стр. 4 этого журнала.

Debido a la excelencia de su proyecto, firme construcción y mejor funcionamiento, los motores de perforación, bombas y compresoras Gardner-Denver se han granjeado la aceptación y preferencia en todo lugar del mundo donde hay explotaciones petrolíferas.

Hay tres tamaños de motores de perforación gemelos Gardner-Denver, que se suministran con válvulas de vapor corredizas o de émbolo, para presiones de vapor de 250 y 350 libras. Todos los motores están completamente cubiertos y tienen armazón bien reforzada y cilindros de extraordinaria firmeza.

Las bombas de vapor y de fuerza Gardner-Denver se ofrecen en una variedad de tamaños y capacidades, para responder a todos los requisitos de extracción de lodo, cementación, alimentación de caldera, recolección y servicio de línea de petróleo en general. Las bombas mecánicas se suministran con propulsión por cadena plana o triangular en V, propulsión por cadena, propulsión directa c con motor de montaje superior.

La Gardner-Denver construye también un extenso surtido de compresoras verticales y horizontales, incluyendo modelos proyectados especialmente para el difícil trabajo de levantamiento de aire y gas, compresores portátiles y compresoras para el arranque de motores Diésel. Lea nuestro anuncio en la página 4.

Par suite de leur conception bien étudiée, leur solidité et leur rendement, les foreuses, les pompes et les compresseurs Gardner-Denver sont renommés et préférés dans les exploitations pétrolières de tous les pays.

Les foreuses Gardner-Denver à deux cylindres sont construites en trois dimensions avec tiroires ou pistons à vapeur, pour pressions de 250 et 350 livres. Toutes ces machines sont entièrement encloses et comportent de gros bâtis nervurés et des cylindres d'une résistance à toute épreuve.

Les pompes mécaniques et à vapeur Gardner-Denver sont livrées en plusieurs dimensions et débits pour tous services de pompage de boues, application de ciment, alimentation de chaudières, récupération et pipelines. Les pompes à vapeur sont fournies avec commande par courroie plate ou trapézoïdale, par chaîne ou par moteur électrique directement accouplé ou monté en dessus.

Gardner-Denver construit une grande diversité de compresseurs verticaux et horizontaux, y compris des compresseurs spécialement étudiés pour des services pénibles tels que l'élévatio nde l'air ou de gaz, des compresseurs portatifs et des compresseurs de démarrage pour moteur Diesel. Voir l'annonce, page 4.

GARDNER-DENVER COMPANY
QUINCY, ILLINOIS, U. S. A.

FISHER AUTOMATIC CONTROL SPECIALTIES

Since 1881 Fisher Governor Company has put every effort in manufacturing a superior line of automatic pump governors, pressure regulators, steam traps, liquid level controllers, lever valves, float valves, back pressure regulators, gas regulators, and similar devices. FISHER controls are used extensively in every country in the World. For the convenience of customers there is an official FISHER representative in most of the great industrial centers.

The petroleum refining and natural gasoline industries have received great benefit in the control of their complex processes by the scientific development of FISHER Automatic Valves.

The FISHER equipment shown above, reading from left to right, is: Type No. 235 Remote Liquid Level Control; Type No. 1 Constant Pressure Pump Governor; Type ST Inverted Bucket Steam Trap; and Type No. 57 Diaphragm Motor Valve or Pressure Regulator.

The complete FISHER catalog, containing details and technical information on these automatic valves, will be mailed upon request.

С 1881 года фирма Fisher Governor Company направляет все свои усилия к изготовлению первоклассных автоматических регуляторов для насосов, регуляторов давления, водоотделителей для пара (трапы), аппаратов для контроля уровня жидкости, предохранительных клапанов, плавающих клапанов, регуляторов противодавлений, регуляторов для газа и прочих аналогичных аппаратов. Контрольные аппараты FISHER широко применяются по всему свету. Для удобства клиентуры FISHER имеет своих представителей во всех крупных индустриальных центрах.

Нефтеперегонная индустрия и индустрия естественного газа получили большие выгоды от применения научно построенных автоматических клапанов FISHER для контроля своих сложных процессов.

Выше изображены следующие аппараты FISHER, с лева на право: тип № 235 контролер уровня жидкости; тип № 1 — регулятор постоянного давления в насосе; тип ST — аппарат для отделения воды от пара (трап); и тип № 57 — диафрагмовый моторный клапан или регулятор давления.

Полный каталог FISHER, с деталями и техническими данными об автоматических клапанах, высылается по запросу.

Desde el año de 1881, la Fisher Governor Company ha hecho toda clase de esfuerzos en la manufactura de un surtido superior de reguladores automáticos para bombas, reguladores de presión, trampas del vapor, reguladores del nivel en los líquidos, válvulas de palanca, válvulas flotantes, reguladores de gas y otros aparatos semejantes. Los reguladores Fisher se usan extensamente en todos los países del mundo. Para conveniencia de los consumidores, hay un representante oficial de Fisher en la mayor parte de los grandes centros industriales.

Las industrias de la refinación de petróleo y de gasolina natural han recibido grandes beneficios con la regulación de sus complicados procedimientos por el desarrolo científico de las Válvulas Automaticas Fisher.

Los equipos FISHER que se ven arriba de izquierda a derecha, son: Regulador a distancia del nivel de líquidos. Tipo No. 235; Regulador de presión constante para bombas, Tipo No. 1; Trampa de vapor de cubo invertido, Tipo ST; y Válvula de diafragma para motor o regulador de presión, Tipo No. 57.

El catálogo completo FISHER contiene detalles e informes tecnicos de las válvulas automáticas y sera enviado por correo si se pide.

La Fisher Governor Company fait, depuis 1881, tous ses efforts pour produire un assortiment supérieur de régulateurs automatiques pour pompes, régulateurs de pression, séparateurs d'eau de condensation, régulateurs de niveau de liquide, soupapes à levier, soupapes à flotteur, régulateurs de pression de retour, régulateurs de gaz et autres dispositifs similaires. Les dispositifs de réglage FISHER s'emploient en grandes guantités dans tous les pays du monde. Pour la commodité des clients, on trouve dans la plupart des grands centres industriels un représentant officiel de la maison FISHER.

L'industrie pétrolière et celle de la raffinerie de l'essence naturelle ont considérablement profité du perfectionnement scientifique des soupapes automatiques FISHER pour régler leurs procédés complexes d'exploitation.

Les articles FISHER représentés cidessus sont, de gauche à droite, les suivants: Régulateur de niveau de liquide à commande à distance de modèle No. 235, Régulateur pour pompe à pression constante de modèle No. 1, Séparateur d'eau de condensation à auget renversé de modèle ST, et Régulateur de pression ou de soupape á diaphragme pour moteur No. 57.

Le catalogue FISHER complet donnant tous les détails concernant ces soupapes automatiques ainsi que tous autres renseignements techniques sera envoyé sur demande.

FISHER GOVERNOR COMPANY
201 South First Ave., MARSHALLTOWN, IOWA, U.S.A.

9TH INTERNATIONAL PETROLEUM EXPOSITION
TULSA, OKLAHOMA, MAY 16-23, 1936

The Ninth International Petroleum Exposition will be held in Tulsa, Oklahoma, May 16 to 23, 1936,—another world-wide gathering of leaders of the great petroleum industry in Tulsa, commonly known as "The Oil Capital of the World."

Founded in 1923, created, sponsored and operated by, for and within the petroleum industry, the Petroleum Exposition has for years been the largest exposition of any single industry in existence. It is a non-profit educational institution operated for the advancement and benefit of the petroleum industry. Previous expositions have attracted world-wide attention and government officials, oil company executives, engineers, superintendents and other key men from every oil producing country in the world have attended to get acquainted, discuss the practical, scientific, technical and engineering problems and advancement of this great world industry; exchange ideas, views and experience.

The 1936 Exposition will be the largest, most interesting and most important yet held. Practically all available exhibit space has already been sold. Scientific, technical and engineering exhibits will exceed former years as will the heavy machinery division, with all the latest in rotary drilling and other field equipment. Special attention is being given to the marketing division, with the greatest display of equipment for filling stations, garages, and repair shops ever assembled.

Endorsed by all government bureaus and leading societies, associations and organizations affiliated with the petroleum industry most of them will hold business sessions and technical discussions during the show. Write Wm. B. Way, General Manager for information.

Девятая Интернациональная Нефтяная Выставка в гор. Tulsa, Oklahoma, будет открыта от 16-го до 23-го года. К этому времени главные лидеры нефтяной промышленности вновь соберутся в гор. Tulsa, который обычно называется "Нефтяной Столицей Мира".

Основанная в 1923 году, созданная для нефтяной индустрии и ею же руководимая и управляемая, эта выставка втечение многих лет устраивается в таких больших размерах, каких еще не достигала выставка никакой другой индустрии. Это чисто научная выставка, которая не устраивается для наживы, а только для целей прогресса и выгод нефтяной индустрии. На предыдущие выставки откликнулись все страны мира. Предоставители правительств, директоры фирмы, инженеры, управляющие и другие ответственные работники со всех стран мира, где только имеется нефть, присутствовали на этих выставках. Здесь они знакомились, обсуждали практические, научные, технические и инженерные проблемы мировой нефтяной промышленности, а также обменивались идеями, мнениями и обогощались опытом.

Выставка 1936 года будет самой большой, самой интересной и наиболее важной из всех бывших до сего времени. Практически все места для выставки экспонатов уже проданы. Научные, технические и инженерные экспонаты превзойдут экспонаты предыдущих лет. Тоже касается и отделка тяжелых машин, где будут представлены новейшие методы вращательного бурения и другие предметы промыслового оборудования. Особое внимание будет уделено отделу продажи продуктов, где будет выставлено в небывалом еще количестве, оборудование для газолиновых станций, гаражей и ремонтных мастерских.

С одобрения правительственных бюро и наиболее крупных научных обществ, всевозможные ассоциации и организации, связанные с нефтяной индустрией, будут иметь во время выставки сессии и технические дискуссии. За справками просим обращаться к Главному Управляющему Выставки Mr. Wm. B. Way.

La Novena Exposición Internacional del Petróleo se celebrará en Tulsa, Oklahoma, E.U.A., del 16 al 23 de mayo de 1936 y será una nueva reunión internacional de los jefes de la gran industria petrolera, en la ciudad de Tulsa, llamada comunmente "la capital del mundo del petróleo."

Fundada en 1923 y creada, protegida y conducida por la industria petrolera, en beneficio de sus intereses, la Exposición del Petróleo ha sido, desde hace años, la principal y más grande de todas las independientes en representación de una sola industria. Es una institución estrictamente educacional, que funciona para el progreso y beneficio de la industria del petróleo. Las exposiciones anteriores han despertado atención internacional. Numerosos representantes oficiales de gobiernos, jefes de compañías de petróleo, ingenieros, superintendentes y otros altos empleados, de todo país productor de petróleo del mundo, han venido a estas exposiciones para conocerse entre si, discutir los problemas y progresos prácticos, científicos, técnicos, y de ingeniería de esta gran industria mundial e intercambiar ideas, impresiones y experiencias.

La Exposición de 1936 será la más grande, interesante e importante de todas las celebradas hasta ahora. Casi todo el espacio de exhibición está ya vendido. Las exhibiciones científicas, técnicas y de ingeniería sobrepasarán a las de años anteriores, lo mismo que las comprendidas en la división de maquinaria grande, entre las cuales se incluirán los más recientes modelos de perforadoras rotatorias y otros equipos de campo. Se dará especial atención a la división comercial, mediante la exhibición más grande de equipos para estaciones de servicio, garajes y talleres de reparación, que se haya visto hasta ahora.

Las oficinas de gobiernos, importantes sociedades, asociaciones y otras organizaciones interesadas en la industria del petróleo, que han patrocinado esta Exposición, celebrarán aquí sesiones comerciales y discusiones técnicas de suma importancia. Para información completa, sírvase escribir a Wm. B. Way, administrador general.

La neuvième exposition internationale du pétrole se tiendra à Tulsa, Oklahoma, du 16 au 23 mai 1936—un nouveau point de rencontre mondial de l'élite de la grande industrie pétrolière à Tulsa, désignée couramment sous le nom de "La capitale pétrolière du monde".

Fondée en 1923, créée, soutenue et gérée par, pour et au sein de l'industrie pétrolière, l'exposition du pétrole est depuis de nombreuses années la plus importante exposition en existence pour n'importe quelle branche d'industrie isolée. C'est une institution éducatrice désintéressée qui se consacre à l'avancement et aux progrès de l'industrie pétrolière. Les précédentes expositions ont soulevé un intérêt mondial, et les chefs de gouvernement, les dirigeants de compagnies pétrolières, ingénieurs, chef de service et autres cadres de l'industrie venant de tous les pays producteurs de pétrole du monde, l'ont régulièrement visitée afin de faire connaissance, de discuter les problèmes pratiques, scientifiques, techniques et spéciaux, ainsi que le développement de cette grande industrie mondiale; enfin, pour échanger des idées, des points de vue et des expériences.

L'exposition de 1936 sera la plus importante, la plus intéressante, et la plus complète qui ait jamais encore été organisée. Pour ainsi dire tout l'espace réservé aux stands est déjà retenu. Les stands scientifiques, techniques et de démonstration seront en plus grand nombre que lors des années précédentes, de même que ceux exposant les machines lourdes, tout le plus récent outilage de forage rotatif et autre matériel d'exploitation pétrolière. Il a été donné une attention toute spéciale à la division vente, qui comportera le choix le plus vaste d'équipement de stations-service, garages, et ateliers de réparation, qui ait jamais encore été rassemblé.

Soutenue par tous les bureaux gouvernementaux et l'élite des sociétés, associations et organisations affiliées à l'industrie du pétrole, l'exposition verra la plupart de ces groupes tenir des sessions d'affaires et des discussions techniques. Pour tous renseignements, écrire à Wm. B. Way, Directeur général.

INTERNATIONAL PETROLEUM EXPOSITION
TULSA, OKLAHOMA, U.S.A.

CONTINENTAL-EMSCO EQUIPMENT

This company, realizing the many hazards and difficulties encountered in drilling and producing oil wells in fields far removed from manufacturers' and warehouse stocks of drilling machinery and supplies, is maintaining competent Sales Engineers at various points throughout the world, for the assistance and convenience of operators.

Engineering suggestions, catalogs and descriptive bulletins will be supplied upon receipt of request on all items used in Exploration and Exploitation, such as EMSCO complete line of Steel Derricks, Rotary Drilling Machinery, Drill Pipe Protectors, "D&B" Pumping Equipment and details of EMSCO latest type Unitary Draw Works and "EMSCO-FORTUNE" Hydraulic Feed and Pressure Drilling Control, also GARDNER-DENVER Rotary Slush and Oil Line Pumps, Farrar & Trefts Oil Country Boilers, GARDNER-DENVER Twin Cylinder Steam Drilling Engines, LESCHEN'S WIRE LINES, CHAMPION Forged Steel Pipe Couplings, YOUNGSTOWN Tubular Goods and Walworth Drilling Gates and Control Fittings.

На промыслах, отдаленных от фабрикантов и от складов бурильных машин и оборудования, бурение нефтяных скважин и эксплоатация таковых связаны со многими опасностями и затруднениями. CONTINENTAL-EMSCO, учитывая это положение и желая помочь операторам, содержит во всех странах компетентных продавцев-инженеров.

Инженерные советы, каталоги и описательные бюллетени по оборудованию для разработки и эксплоатации промыслов высылаются по всем запросам. В это оборудование входит: стальные вышки, машины для вращательного бурения и предохранители для бурильных труб фирмы EMSCO, насосное оборудование "D & B", лебедки EMSCO последнего типа, гидравлическая подача "EMSCO-FORTUNE" и приспособление для контроля давления при бурении, грязевые насосы GARDNER-DENVER и насосы для нефтепроводов, паровые котлы FARRAR & TREFTS промыслового типа, двухцилиндровые паровые машины GARDNER-DENVER для бурения, стальные канаты LESCHEN, стальные кованные муфты CHAMPION для труб трубы YOUNGSTOWN, бурильные задвижки и контрольная арматура WALWORTH.

,Esta compañía, comprendiendo los problemas y dificultades, que se presentan en la perforación y explotación de pozos petrolíferos en lugares alejados de los puntos de abastecimiento de maquinaria y materiales para el trabajo, mantiene competentes ingenieros en varios mercados del mundo para la conveniencia y beneficio de los operadores.

Sugestiones técnicas, catálogos y boletines descriptivos, se suministrarán a los interesados que nos lo pidan. Este servicio informativo versa sobre todo lo que se necesita para la exploración y explotación de yacimientos petrolíferos, refiriéndose en particular al completo surtido EMSCO de cabrías de acero, maquinaria perforadora rotatoria, protectores de tubos de taladros, equipo de bomba "D & B" y detalles del más reciente tipo de obras de extracción unitarias EMSCO y control "EMSCO-FORTUNE" de alimentación hidráulica y perforación por presión, como asi mismo, sobre las bombas rotativas GARDNER-DENVER para fango y tubería de petróleo, calderas Farrar & Trefts especiales para explotaciones de petróleo, máquinas perforadoras a vapor, bicilíndricas, de tipo GARDNER-DENVER, líneas de alambre de LESCHEN, acoplamientos CHAMPION de acero forjado, para tubería, tubería YOUNGSTOWN y compuertas de perforación y accesorios de gobierno de marca Walworth.

La compagnie ci-dessus se rendant compte des numbreaux risques et difficultés rencontrées au cours du forage et l'exploitation des puits pétrolifères dans des champs fort éloignés des fabricants et des entrepôts de stocks de machines et d'accessoires de forage, a organisé des services de ventes par ingénieurs à divers points disséminés dans le monde entier, afin de rendre service aux entrepreneurs de forage.

Des suggestions fournies par des ingénieurs spécialisés, des catalogues techniques et des fascicules descriptifs seront fourni sur simple demande concernant tous les articles employés pour l'exploration et l'Exploitation des gites de pétrole, par exemple la série complète EMSCO de grues d'acier, de machines de forage rotatif, de Protecteurs de Tubes de forage, d'Equipement de Pompe "D & B" ainsi que des détails concernant le type le plus récent de Unitary Draw Works et des appareils de contrôle "EMSCO-FORTUNE" de Forage d'alimentation hydraulique et de pression, aussi sur les Pompes Rotatives GARDNER-DENVER à boue et à canalisation de pétrole, les chaudières "Oil Country" de Farrar et Trefts, des moteurs de forage à vapeur à cylindre jumeau GARDNER-DENVER, des CABLES LESCHEN, des accouplements de tubage en acier forgé CHAMPION, des articles de tubage YOUNGSTOWN et des vannes de forage Walworth et des accessoires de contrôle.

Address your requests for further details to:

CONTINENTAL EMSCO COMPANY, Inc.
19 RECTOR STREET, NEW YORK, N. Y., U.S.A.
LONDON, England **BUENOS AIRES, Argentine**
Cable Address: **"CONEMSCO"**

VOLATILITY HIGHER OCTANE LOWER INITIAL INCREASED ANTI-KNOCK

NATURAL GASOLINE

MOTOR FUEL TREND FAVORS NATURAL GASOLINE

Foreign refiners and oil marketers as well as those in the United States see the steady but sure change in consumer attitude as we work out of this world depression. Price alone ceases to be the guide to purchases.

The mounting numbers of new car owners are demanding a knockless, quick-starting, carbon-free, uniform motor fuel. The use of natural gasoline is the one means of bringing about the balance.

Natural gasoline, with Ethyl fluid, serve as perfect companions in making 70 octane gasoline most economically.

Natural gasoline supplies the proper proportion of volatile hydrocarbons for quick starting.

Natural gasoline vaporizes and burns 100 per cent to leave no carbon.

Natural gasoline, correctly blended, will smooth out any irregularity in the refiner's gasoline and allows him to "build" a motor fuel that matches seasonable demands.

Warren Petroleum Company specialize only in sale of natural gasoline and are the largest dealers of this product in the world.

Иностранные, а также и американские нефтеперегонные заводы и фирмы торгующие нефтью наблюдают за последнее время постепенное повышение технических требований потребителей. Цены перестали являться главным фактором при закупках.

Все время возрастает число автомобилистов предъявляющих требование на быстро-стартующее, обеззоленное и однородное топливо, обладающее качеством антинок. Употребление натурального газолина является единственным средством для выполнения этих условий.

Натуральный газолин в соединении с этилом служит прекрасной комбинацией для наиболее экономного способа получения газолина номер 70 октан.

Натуральный газолин дает правильную пропорцию летучих углеводоров для быстрого пуска в ход машины.

Натуральный газолин испаряется и сгорает полностью и не оставляет несгоревшего углерода.

Правильно составленная смесь натурального газолина выравнивает всевозможные неправильности в газолине полученном нефтеперегонкой и дает возможность приспособления качеств последнего к сезонным требованиям.

Warren Petroleum Company специализируется исключительно на торговле натуральным газолином и является самым крупным продавцом этого продукта во всем мире.

Los refinadores y petroleros extranjeros así como los de los Estados Unidos ven el cambio firme y seguro en la actitud de los consumidores a medida que salimos de esta depresión mundial. Los precios solos dejan de ser los guías de las compras.

Los números os poseedores de nuevos automóviles están exigiendo un combustible con el que los motores no golpeen, arranquen fácilmente y queden libres de carbón. El uso de la gasolina natural es uno de los medios de llegar al equilibrio.

La gasolina natural con flúido Etílico sirve perfectamente para hacer económicamente la gasolina 70 octane.

La gasolina natural suministra en proporción conveniente los hidrocarbonos volátiles para facilitar el arranque.

La gasolina natural se vaporiza y se quema 100 por ciento sin dejar nada de carbón.

La gasolina natural, correctamente mezclada, facilitará cualquiera irregularidad en las refinerías de gasolina permitiéndoles obtener un combustible para motor que corresponda con la demanda actual.

La Warren Petroleum Company se especializa en sólo en vender gasolina natural y son los comerciantes de este producto mas grandes del mundo.

Les raffineurs et vendeurs de pétrole à l'étranger, ainsi que ceux des Etats-Unis observent le changement d'attitude progressif mais incontestable du consommateur, au fur et à mesure que nous sortons de la dépression mondiale. Le prix cesse d'être le seul guide pour l'achat.

Les nouveaux propriéetaires d'automobiles, en nombre croissant, exigent un carburant moteur antidétonant, à démarrage facile, exempt de carbone, et de composition uniforme. L'emploi de l'essence naturelle est précisément le moyen pour réaliser cet équilibre.

L'essence naturelle, avec le fluide Ethyl, sont ensemble tout indiqués pour préparer économiquement l'essence 70 octane.

L'essence naturelle fournit les proportions convenables d'hydrocarbones volatils pour assurer le démarrage facile.

L'essence naturelle se vaporise et brûle complètement sans laisser aucun résidu de carbone.

L'essence naturelle, correctement dosée, atténuera toute irrégularité de l'essence des raffineurs et permettra à ces derniers de mettre au point un carburant moteur qui répondra aux exigences saisonnières.

La Warren Petroleum Company est spécialisée seulement dans la vente de l'essence naturelle et est le plus important distributeur de ce produit dans le monde entier.

We specialize only in the sale of Natural Gasoline and will be pleased to serve you in quantities large or small.

WARREN PETROLEUM COMPANY
National Bank of Tulsa Bldg.,
TULSA, OKLAHOMA, U.S.A.

MOORE TYPE KAY DERRICK

Lee C. Moore & Co., Inc., with plants in both Pittsburgh, Pa., and Tulsa, Okla., representatives and stocks in principal active fields, manufacture a complete series of A.P.I. drilling and pumping Derricks with both tubular and angle legs. The patented Kay bracing is efficient, rigid and easy to erect. They also manufacture a complete line of derrick accessories including crown blocks with babbitted, bronze or roller bearings, working platforms, frame and interior floor sills and substructures for all purposes.

They also have a complete line of improved pumping equipment, including samson posts, silicon steel walking beams, oil bath and roller bearing beam hangers. Bull, band and calf wheels, Jack posts, bull and calf wheel posts with self-aligning bearings. Dust proof oil bath rig irons. Reduction gears with both single and double reduction. Spudders and clean-out machines.

Write for complete information on any item.

Фирма Lee C. Moore & Co., Inc. имеет заводы в Pittsburgh,Pa. и Tulsa, Oklahoma, а также представителей и склады на главных действующих промыслах. Эта фирма изготовляет полную серию буровых и насосных вышек стандарта А. Р. I. (Американского Нефтяного Института) со стойками как из труб, так и из угольников. Патентованные крепления Кау надежны, прочны и сборка их производится легко. Фирма также изготовляет всевозможные принадлежности для вышек, включая кронблоки с бабитовыми, бронзовыми и роликовыми подшипниками, рабочие платформы, раму и крепления для пола, а также разные стальные конструкции.

Кроме того, фирма изготовляет комплектную серию усовершенствованного насосного оборудования, включая стойки, балансиры из стали с содержанием кремния, балансирные подвески с масляными ваннами или роликовыми подшипниками, шкивы инструментальные, шкивы главного привода и талевые шкивы, стойки главного привода, стойки инструментального и талевого приводов с самоцентрирующимися подшипниками. Части станков для канатного бурения с непроницаемыми для пыли масляными ваннами. Редукционные шестерни одиночные и двойные. Станки для оттяжки и чистки.

Полные информации о каждой отдельной машине высылаются по требованию.

La Lee C. Moore & Co., Inc., con fábricas en Pittsburgh, Pa. y Tulsa, Okla., E. U. A., y con representantes y depósitos en los principales centros petrolíferos del mundo, construye un completo surtido de torres para perforación y extracción por bomba, bajo la conocida marca A. P. I. Las ofrece con patas tubulares o angulares. El refuerzo patentado Kay es eficaz, rígido y fácil de montar. También fabrica un surtido completo de accesorios para torres, incluyendo bloques de corona, con cojinetes de babbit, de bronce o de rodillos, plataformas móviles, soleras o soportes de armazón y piso interior y subestructuras para todo servicio.

También ofrece un surtido completo de equipos para bombas notablemente perfeccionados, en el que se incluyen postes especiales, vigas de acero especial, soportes de viga para baños de aceite y cojinetes de rodillos; ruedas diversas, postes corrientes, y postes para ruedas con cojinetes de alineación automática. En este surtido se comprenden también sostenes para baños de aceite a prueba de polvo, mecanismos de reducción con desmultiplicación sencilla o doble y máquinas limpiadores.

Sírvase pedirnos información sobre cualquiera de estos artículos.

La Lee C. Moore & Co., Inc., qui a des usines à Pittsburgh, Pensylvanie, et à Tulsa, Oklahoma, ainsi que des représentants et des dépôts dans les principaux gisements en exploitation, fabrique un assortiment complet de derricks de forage et de pompage à pieds en tubes et à pieds en cornières. L'entretoisement breveté Kay est efficace, rigide et de montage facile. Cette maison fabrique aussi un assortiment complet d'accessoires de derrick comprenant des blocs de sommet avec paliers à coussinets antifriction, coussinets en bronze ou à roulements à rouleaux, des plateformes d'opération, des semelles de châssis et de plancher intérieur et des charpentes pour tous usages.

Elle a aussi un assortiment complet et perfectionné de matérial de pompage comprenant des poteaux de support, balanciers en acier au silicium, chaises pour solives à roulements rouleaux fonctionnant dans un bain d'huile, roues de commande: grande, petite et à bande; poteaux, poteaux de support des roues avec roulements à alignement automatique; accessoires de manoeuvre fonctionnant dans un bain d'huile et à l'épreuve de la poussière; engrenages de démultiplication à simple et double réduction; sondes pour forage préliminaire "spudders" et machines de nettoyage.

Demander des renseignements complets sur chaque article.

LEE C. MOORE & CO., Inc.
PITTSBURGH, PA., U.S.A.

MILLER SAND PUMP

A combination Oil Well Bailer and Sand Pump with four interchangeable Bottoms—STAR & CHISEL for cutting sand loose, SAND BOTTOM for quickly removing loose material, BAILER BOTTOM when tool is used as a Bailer. The enormous suction created by the plunger traveling upward causes the tool to bring out a full load of sand and mud. The wire line going through the bail permits use of 25 or 30-foot length pumps. These features save time in cleaning out besides increasing the production of the well. In cleaning out equipment the MILLER Sand Pump has established a world wide reputation of service over ten years.

Песочный насос Миллера представляет собою комбинированную желонку и песочный насос. Он имеет четыре взаимозаменяемые нижние части, а именно: крестообразное долото и прямое долото, которые служат для раздробления песчаных пород; песочный клапан для быстрого извлечения раздробленных пород; желоночный клапан для тех случаев, когда этот инструмент применяется как желонка. Ввиду большого вакуума, который образуется при движении поршня вверх, вся желонка наполняется песком и грязью. Благодаря проволочному канату, который проходит через трубу насоса, длину последнего можно довести до 25-ти фут. Эта большая длина ускоряет работу по очистке и увеличивает добет скважины.

Una combinación de Cuchara de Lodos para pozos de petróleo y Bomba de Arena con fondos intercambeables. Con boca de estrella y de cincel para cortar arena suelta. Fondo de Arena para la remoción rápida de material suelto. Fonde de Cuchara cuando la herramienta se usa como cubo. La enorme aspiración desarrollada por el émbolo en su movimiento ascendente hace que la herramienta saque cargas completas de arena y lodo. El alambre que atraviesa la cuchara permite hacer uso de una bomba de 25 pies. Estos detalles ahorran tiempo y limpieza, y aumentan la producción de los pozos.

Une combinaison d'Ecope à Boues et de Pompe à Sable pour puits pétroliers, avec quatre fonds interchangeables. Ouverture en forme d'étoile et Burin pour entamer le sable, Fond à Sable pour l'enlèvement rapide du sable détaché, Fond à Ecope pour l'emploi de l'instrument comme écope. L'aspiration puissante créée par le mouvement ascendant du plongeur amène l'instrument à entrainer un chargement complet de sable et de boues. Le câble qui traverse l'écope permet d'employer une pompe de 25 pieds. Ces dispositifs épargnent du temps au nettoyage du puits et augmentent le rendement de l'extraction.

MILLER SAND PUMP CO.
General Office and Plant:
SAPULPA, OKLA., U.S.A.

Williams' "Vulcan Boll-Weevil" Reversible Chain Pipe Tongs

A simplified, reversible action tongs, operates by simply laying on top of pipe and hooking chain around it. "Makes-up" or "breaks-out" without unhooking chain or removing tong from pipe. Other features are reversible jaws and proof-tested chains. Four sizes for pipe ¾ to 12". Fully guaranteed.

Williams' "Vulcan" Chain Pipe Tongs

A world-famous Tongs for over 35 years. Popular in the oil fields because of its great strength and dependability. Made entirely of tough wrought steel equipped with either Flat or Cable chain. Flat chains are proof-tested and certified. Five sizes for pipe ⅛ to 18". Fully guaranteed.

Это упрощенные ключи, действующие в обе стороны. Во время работы их просто кладут поверх трубы и закрепляют цепь, пропуская ее вокруг труб. Как завертывание труб, так и отвертывание производятся без раз'единения цепи и без с'емки ключа с трубы. Другие достоинства ключа заключаются в реверсивных челюстях и надежно испытанных цепях. Они изготовляются четырех размеров для трубы от ¾" до 12". Эти ключи вполне гарантированы.

Ключи, пользующиеся мировой известностью втечение 35-ти лет. Они популярны на нефтяных промыслах ввиду их большой силы и надежности. Они сделаны целиком из кованной стали и снабжены либо плоскими цепями Галля, либо цепями со звеньями. Цепи Галля испытаны и имеют инспекторские сертификаты. Эти ключи изготовляются пяти размеров для труб от ⅛" до 18". Они вполне гарантированы.

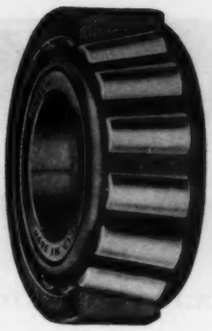
Estas tenazas son de acción reversible simplificada. Basta colocarlas en la parte de arriba del tubo y de engancharlas con la cadena, para dar firme agarro. Se aprieta o se suelta sin tener que desenganchar la cadena o separar las tenazas del tubo. Entre otras características interesantes merecen atención sus mandibulas reversibles y las cadenas rigurosamente ensayadas. Se ofrecen en cuatro tamaños para tubería de ¾" a 18". Se garantizan incondicionalmente.

Estas tenazas gozan de reputación universal desde hace más de 35 años. Son muy populares en los campos petrolíferos a causa de su gran firmeza y funcionamiento invariablemente seguro y satisfactorio. Se hacen enteramente de firme acero forjado. Se suministran con cadenas planas o cadena de cable. Las cadenas se ensayan con sumo cuidado y se garantizan. Cinco tamaños para tubos de ¼" a 18". Se garantizan incondicionalmente.

Voici des tenailles à action réversible, simplifiée, qu'il suffit de placer *au sommet* du tuyau et d'entourer d'une chaine d'accrochage. "Se met" ou "se défait", sans avoir à décrocher la chaine ou à séparer les tenailles du tuyau. Entre autres caractéristiques intéressantes, citons les machoires réversibles et les chaines rigoureusement éprouvées. Il en est offert quatre grandeurs pour tuyau de ¾ de pouce à 12 pouces. Garanties sans réserve.

Des Tenailles universellement renommées depuis plus de 35 ans. Très populaires dans les champs de pétrole à cause de leur grande robustesse et de leur fonctionnement de tout repos. Fabriquées entièrement d'acier forgé résistant, elles sont équipées avec chaine plate ou avec chaine à câble. Les chaines sont rigoureusement éprouvées et certifiées. Il en est offert cinq grandeurs pour tuyau allant de ¼ de pouce à 18 pouces. Garanties sans réserve.

J. H. WILLIAMS & CO.
"The Drop-Forging People"
75 Spring Street
New York, U.S.A.
Western Warehouse and Sales Office:
CHICAGO
Works: Buffalo, N. Y.



THE TIMKEN TAPERED ROLLER BEARING

The Timken Tapered Roller Bearing consists of tapered rollers operating between tapered inner and outer races. These are the load-carrying elements. A specially-designed cage keeps the rollers accurately spaced. Positive roller alignment is secured by two-point contact of the large ends of the rollers with a rib on the inner race.

This construction gives the Timken Bearing inherent ability to carry all thrust, radial and combined loads at the same time; holds moving parts in correct and constant alignment; eliminates friction and wear; saves power and lubricant. These advantages have made Timken Bearings dominant in all types of oil field equipment, and in all other types of machinery throughout all industry.

Timken Tapered Roller Bearings are made of a special grade of Timken electric furnace alloy steel—the most efficient bearing material ever developed. Rollers and races are case hardened and accurately ground to size.

Конические роликовые подшипники Timken состоят из конических роликов, которые работают между двумя коническими направляющими: внутренней и внешней. Эти три элемента несут на себе всю нагрузку. Клетка специальной конструкции держит ролики на правильном расстоянии друг от друга. Правильное положение роликов обеспечивается двухточеным контактом широкой стороны ролика с ребром, имеющимся на внутренней направляющей.

Эта конструкция дает подшипникам Timken способность выдерживать одновременно прямые, радиальные и комбинированные нагрузки; все движущиеся части всегда сохраняют правильное положение; трение и износ отсутствуют; сохраняется энергия и сберегается смазка. Благодаря этим достоинствам подшипники Timken встречаются чаще других на всех машинах, применяемых на нефтяных промыслах, а также применяемых во всех других индустриях.

Конические роликовые подшипники Timken изготовляются из стали специального сплава, получаемой в электрических печах Timken; эта специальная сталь является наилучшей из всех известных материалов для подшипников. Ролики и направляющие закалены и аккуратно отшлифованы до требуемых размеров.

El Cojinete de Rodillos Cónicos Timken consiste de rodillos cónicos que giran entre correderas cónicas internas y externas, siendo éstas los elementos que soportan las cargas. Una caja de diseño especial mantiene los rodillos exactamente separados. El alineamiento exacto de los rodillos se asegura por dos puntos de contacto de las extremidades más grandes de los rodillos con un reborde en la corredera interna.

Esta construcción da a los Cojinetes Timken: habilidad natural de recibir todo el empuje, y al mismo tiempo recibir las cargas radiales y combinadas; mantener las piezas movibles en alineamiento constante y exacto; eliminar rozamientos y desgastes; ahorrar potencia y lubricante, Estas ventajas han hecho a los Cojinetes Timken dominantes en todos los tipos de equipos para los campos de petróleo y en otros tipos de maquinaria en todas las industrias.

Los Cojinetes de Rodillos Cónicos Timken son hechos de aleaciones de acero Timken especiales preparadas en horno eléctrico—el material más eficiente para cojinetes hasta ahora desarrollado. Los rodillos y las correderas son de superficie en durecida y pulidos a sus dimensiones exactas.

Le roulement Timken à rouleaux coniques se compose de rouleaux coniques fonctionnant entre une cuvette intérieure conique et une cuvette extérieure également conique. Ce sont les éléments qui supportent la charge. Une cage de conception spéciale maintient les rouleaux à l'écartement voulu. L'alignement positif des rouleaux est assuré par un contact de deux points entre la grosse extrémité des rouleaux et une nervure aménagée sur la cuvette intérieure.

Cette construction permet au rouleau Timken de supporter les efforts de butée, les efforts radiaux et les efforts combinés de butée et radiaux à la fois; ells assure l'alignement exact et constant des pièces mobiles; elle élimine le frottement et l'usure et elle économise la force motrice et le lubrifiant. Ces avantages ont donné la supériorité aux roulements Timken sur tous les autres dans le matérial de tout genre pour champs pétrolifères ainsi que dans les machines de tous les autres genres dans l'industrie tout entière.

Les roulements Timken à rouleaux coniques sont en acier spécial au four électrique Timken d'une qualité particulière—cet acier spécial est la substance la plus afficace qui ait jamais été produite pour la fabrication des roulements. Les rouleaux et les cuvettes sont cémentés et rectifiés avec précision à la grandeur exacte.

THE TIMKEN ROLLER BEARING COMPANY
CANTON, OHIO, U.S.A.

MALONEY BOLTED STEEL STORAGE TANKS

The first knocked-down bolted steel storage tanks were built by Maloney. Today, where tanks are needed to store oil, water, or lighter products of crude, Maloneys offer many exclusive advantages, and are most economical. They are made in capacities from 100 to 10,000 bbls., A.P.I. Specifications.

Maloney Tanks are made of rust-resistant Keystone Copper Steel. Our special cloth-inserted red rubber packing is used in all seams. All seams are reinforced with heavy steel channels. Decks are of new segmental construction and are supported by new 2x2 steel deck rafter, attachable to sheets with bolts held in place. Ladders are constructed of heavy steel angles. Special bolts of 90,000 pounds tensile strength are used throughout. All tanks are equipped with aluminum combination vacuum-pressure valve and thief hatch, and new large clean-out plate, 30"x48". Tanks are gun-spray painted, interiors with Red Chromated Iron-Oxide corrosion-resisting paint. Exterior with this same paint as primer and our high-grade heat-reflecting aluminum paint as finish coat.

Maloney offers the self-supporting, non-sagging, cantilever type, non-skid sectional steel Stairway and Walkway shown in photo. Walkway is set on strong brackets attached to tanks, and has no ground supports.

Maloney Tanks in all sizes may now be ordered of GALVANIZED steel. Our standard tanks are galvanized AFTER fabrication, with pure zinc, by hot-dip process, spelter weighing 5 lbs. per 100 lbs. of steel.

MALONEY products are packed in steel-bound crates for export, conforming in all respects to customs regulations of countries to which they are shipped.

Фирма Maloney первая начала строить резервуары разборного типа на болтах. В настоящее время резервуары Maloney считаются наиболее экономными для хранения нефти, воды или легких нефтяных продуктов. Они строятся вместимостью от 100 до 1000 баррелей и отвечают спецификациям Американского Нефтяного института (A.P.I.).

Верхние и нижние швы вакуумных резервуаров укреплены с внутренней стороны угольниками в 2½x2½x1-8 д. Кроме того они имеют вертикальные стяжки из угольников в 2½x2½x1-4д. Лестницы и стяжки прочно укреплены вниз и наверх. Эти резервуары выдерживают давление в 16 унций и вакуум в 1-2 унции.

Резервуары Maloney строятся из нержавеющей стали марки Keystone Copper Steel; все листы, включая верхний ряд соединены между собою гладкими швами, причем между всеми швами проложена специальная прорезиненная матерчатая прокладка; болты имеют разрывное усилие в 90.000 англо-фунтов; подпорки площадок и лестниц сделаны из стальных угольников тяжелого сечения; резервуары вместимостью от 2000 до 10000 баррелей имеют консоли для поддержки крыши. Все резервуары снабжены вакуумными клапанами, люками для взятия проб и люками для чистки.

Все резервуары окрашены как внутри, так и снаружи механическим способом специальной алюминиевой краской Maloney высшего качества. В состав этой краски входит 1 3-4 фунта алюминия на один галлон краски.

Резервуары Maloney упаковываются для экспорта в деревянные клетки со стальными обручами и маркируются согласно таможенным правилам тех стран, в которые они направляются.

Los primeros tanques remachados, fueron construidos por Maloney. Actualmente, dondequiera que se necesitan tanques para almacenar petróleo, agua u otros productos más ligeros que el petróleo, los tanques depósito Maloney son los más económicos. Se construyen con capacidad para contener desde 100 hasta 10.000 barriles, según las especificaciones del American Petroleum Institute.

Los tanques Maloney están reforzados con ángulos de 2 x 2 x ⅛ pulgadas por la parte interior de las costuras, arriba y en el fondo, y con ángulos de 2 x 2 x ¼ pulgadas arriba y abajo de las riostras de conexión. Tanto las riostras como las escaleras están fuertemente unidas con codos de hierro. Estos tanques mantienen una presión de 16 onzas y un vacío de ½ onza.

Los tanques Maloney están hechos de acero cuprífero, altamente resistente a la oxidación y todas las costuras o uniones están volteadas con empaquetadura de tela de caucho especial de Maloney; los remaches tienen resistencia a la tensión de 90.000 libras. Todos los tanques están provistos de válvulas eficientes para presión y vacío, tubos para tomar muestras, más planchas circulares de ¾ para la limpieza. Todos los tanques están pintados interior y exteriormente por pulverización de pintura de aluminio especial de Maloney.

Los tanques Maloney se empacan en huacales para exportación con ligaduras de acero y se marcan de acuerdo con los reglamentos de las aduanas.

Les premiers réservoirs boulonnés ont été construits par Maloney. Actuellement, chaque fois qu'on a besoin d'emmagasiner de l'eau, du pétrole ou des produits plus légers, les réservoirs Maloney sont les plus économiques. Leur capacité varie de 100 à 10.000 barils et leur construction est conforme aux spécifications de l'Institut Américain du Pétrole.

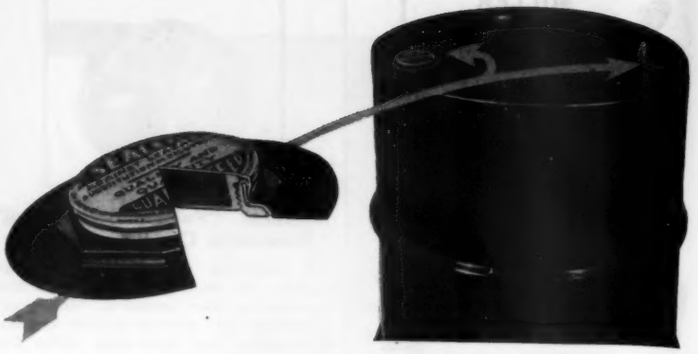
Les réservoirs Maloney sont renforcés aux coutures internes supérieures et inférieures par des cornières de 2" x 2" x ¼", et, de haut en bas, par des tirants de 2" x 2" x ¼". Les tirants et les échelles sont eux mêmes renforcés de haut en bas par des goussets. Ces réservoirs peuvent résister à une pression de 16 onces et à un vide d'½ once.

Les réservoirs Maloney sont en acier cuprifére Keystone fortement antirouille, et toutes leurs coutures ou joints sont déportés et munis de garnitures spéciales Maloney en toile caoutchoutée; la résistance à la traction des boulons employés est de 90.000 livres. Tous les réservoirs sont munis de soupapes efficientes pour la pression et le vide, et de trappes à prélèvements, et comportent, en outre, des plaques de nettoyage, circulaires de ¼. Chaque réservoir est peint à l'intérieur et à l'extérieur par pulvérisation d'une peinture spéciale à l'aluminium Maloney.

Les réservoirs Maloney sont logés dans des caisses à clairevoie pour l'exportation et marqués en conformité avec les exigences de la douane du pays de destination.

MALONEY TANK MFG. CO.

TULSA - - - - - OKLAHOMA, U.S.A.



TRI-SURE TRIPLE-SAFETY SEALING UNIT FOR DRUMS

In every part of the world, drum users have found that the surest way to protect their drums from tampering and waste is to equip them with Tri-Sure Closures. These closures have a flange, plug and leak-proof seal that keep the drum perfectly tight and safe. The plug cannot loosen in transit. The seal makes substitution impossible. There is no breathing in of moisture. Complete drainage is assured because the flange is flush with the inside of the drumhead. Flange welding troubles are prevented. There is no warpage, no shrinkage and no damage from flaky scale.

Tri-Sure makes certain that exactly the same quantity and quality you put into a drum comes out of it—without tampering, without leakage, without waste. This means that your customers know they are getting exactly what they pay for. No matter how far your drums must travel —no matter how or by whom they are handled—if they are equipped with Tri-Sure Closures they are always tight and safe.

Потребители бочек всех стран света пришли к убеждению, что наиболее верным способом предохранения бочек от исправлений и утечек — является снабжение их Затворами Tri-Sure. Эти затворы имеют фланец, пробку и герметически непропускающее соединение, благодаря чему бочка чрезвычайно плотно и безопасно запирается. Их применение совершенно устраняет возможность проникновения влаги во внутрь бочки. Кроме того, обеспечивается полный дренаж, так как фланец приходится за подлицо с внутренней поверхностью крышки бочки. Также устранены осложнения по приварке фланцев к бочке. Помимо всего этого, не может произойти никаких покривлений или деформаций, а также не могут быть порчи затворов от хлопкообразных осадков.

Применение затворов Tri-Sure дает уверенность в том, что тоже количество и качество продуктов, которые поступили *в бочку*, поступают *обратно* из нее — без ремонтов, без утечек, без каких-либо потерь. Благодаря этому Ваш покупатель *знает*, что он получает в точности тот продукт, за который он платил деньги. Вне зависимости от того, как далеко отправляются бочки, а также вне зависимости то того, как с ними обращаются, — раз только они снабжены затворами Tri-Sure, они всегда будут герметически закрыты и безопасны.

En todas partes del mundo, los que usan tambores han visto que la manera más segura de proteger los tambores contra indebido manejo y desperdicio es equipándolos con cierres Tri-Sure. Estos cierres tienen una pestaña, un tapón y una tapa a prueba de escape, que mantienen al tambor perfectamente hermético y seguro. El tapón no puede perderse en tránsito. La tapa o sello hace imposible toda substitución. No hay entrada de humedad. Se asegura un drenaje completo porque la pestaña queda al ras del interior de la cabeza del tambor. Se evitan las molestias de soldadura de pestaña. No hay torcimiento, encojimiento ni daño por la formación de escama.

El Tri-Sure le asegura que exactamente la misma cantidad y calidad que Ud. echa en un tambor será la que salga de él—sin que nadie lo toque, sin goteo, sin desperdicio. Esto significa que sus clientes *saben* que están recibiendo exactamente lo que compraron. No importa qué distancia tengan que viajar sus tambores, no importa cómo ni quién los maneje, estarán siempre *apretados* y *seguros* si están protegidos con los cierres Tri-Sure.

Dans toutes les parties du monde, ceux qui font usage de tambours savent par expérience que le moyen le plus sûr de mettre leurs tambours à l'abri des fraudes et des pertes consiste à les munir de Fermetures Tri-Sure. Ces fermetures consistent d'une bride, d'un tampon et d'un dispositif d'étanchéité anti-fuite, qui ensemble assurent au tambour une étanchéité et une sécurité absolues. Le tampon ne peut prendre du jeu en cours de transport. Le dispositif d'étanchéité rend toute substitution impossible. Aucune pénétration d'humidité ne se produit. Un drainage intégral est assuré grâce à ce que la bride est affleurante par rapport à la paroi intérieure de la tête de tambour. Les soudures désagréables de bride se trouvent évitées. On n'a plus à craindre de gauchissement, de rétrécissement, ni de détérioration résultant d'incrustations écailleuses.

Tri-Sure permet d'être sûr que la quantité et la qualité d'un chargement de tambour seront trouvées *intactes* à destination —sans fraude, sans coulage, sans perte. Vos clients ont ainsi la *certitude* de recevoir exactement ce qu'ils ont commandé. Quelles que soient les distances que vos tambours soient appelés à parcourir— quelque rude que soit leur manutention durant le transport—s'ils sont munis de fermetures Tri-Sure, on est toujours assuré d'une *étanchéité* et d'une *sécurité* parfaites.

AMERICAN FLANGE & MFG. CO., INC.

825 South Kilpatrick Avenue, Chicago, Ill., U.S.A.
26 Broadway, New York, N. Y., U.S.A.
AMERICAN FLANGE INTERNATIONAL, LTD.
Shell-Mex House, Strand, London, W.C.2

GEOPHYSICAL SERVICE
INC.

DALLAS, TEXAS, U.S.A.

GEOPHYSICAL SERVICE, INC., offers the following service: Scientific interpretation of subsurface geological structure as disclosed by a geophysical survey with the reflection seismograph. Complete motorized equipment is furnished, including drilling machines, both rotary and spudder types, recording instruments and seismographs, operated by scientifically trained technicians. Clients receive written discussion, also subsurface contour maps, showing depths of geological formations. All data obtained and furnished is confidential. Multiple series arrangement of instruments used for both exploratory and detailed surveys.

LE GEOPHYSICAL SERVICE, INC., offre le service suivant: Interprétation scientifique de la structure géologique du sous-sol déterminée par une prospection géophysique au moyen du sismographe à réflexion.

Un équipement motorisé complet est fourni, comprenant des foureuses, soit rotatives, soit du type à percussion, des instruments enregistreurs et des sismographes, ainsi que des techniciens à formation scientifique pour leur maniement. Les clients reçoivent des rapports écrits, ainsi que des cartes du sous-sol avec courbes de niveau indiquant les profondeurs des formations géologiques. Toutes les données obtenues et fournies sont de nature confidentielle. Disposition en série multiple des instruments utilisés pour l'exploration et pour la prospection détaillée.

EL GEOPHYSICAL SERVICE, INC., ofrece el servicio siguiente: Interpretación científica de la estructura superficial geológica correspondiente a los reconocimientos geofísicos hechos con el sismógrafo de reflección.

Se suministra equipo completo con motores, incluyendo, máquinas perforadoras, rotatorias y del tipo de percusión, instrumentos y sismógrafos registradores manejados por técnicos científicamente instruídos. Los clientes reciben las discusiones por escrito, y mapas del subsuelo con curvas de nivel, mostrando las profundidades de las formaciones geológicas. Todos los datos que se obtienen y se suministran son confidenciales. Arreglo en series múltiples de instrumentos que se usan para exploraciones y para reconocimientos detallados.

(GEOPHYSICAL SERVICE. INC.) предлагает следующие услуги: Научные обследования подземных геологических отруктур географическим методом при помощи сейсмографа. Поставку полных установок с двигателями, включая буровые станки, как для вращательного, так и для ударного бурения, самозаписывающих инструментов и сейсмографов. Все это обслуживается нашим научным персоналом. Клиенты получают письменные доклады с подземными контурными картами, на которых указаны глубины геологических формаций. Все получаемые и выдаваемые сведения сохраняются в полной конфиденциальности. Фирма также поставляет комплектные серии инструментов применяемых как для эксплоатационных, так и для детальных изысканий.

SEISMIC SURVEYS successfully conducted in following areas:

U.S.A.—Mid-Continent, Gulf Coast, West Texas, Rocky Mountain, Appalachian, Michigan, Eastern Interior Coal Basin, and Pacific Coast.

CANADA—Alberta and Quebec.

MEXICO—Northeastern Tampico region and Isthmus of Tehuantepec.

VENEZUELA—Eastern.

OIL EQUIPMENT & ENGINEERING EXPOSITION
April 20-25, 1935, Houston, Texas

The most advanced methods and equipment for drilling, production, refining and pipe line work will all be exhibited at this Technical Exposition; also new improvements and new equipment particularly suited for overcoming high gas pressures and blowouts on drilling wells such as have been used to overcome many problems in Texas and the Gulf Coast of Louisiana and Texas. New designs in pumping equipment have been developed in the Mid-Continent and particularly in East Texas by a number of large manufacturers, and used in the East Texas fields. New pipe line equipment; welding equipment for pipe lines which is used in foreign countries, as well as in all fields of the United States; particularly in the largest field in the world—East Texas. Gasoline plants and refinery equipment, instruments, shop equipment, pulling machines, hoists, and other equipment will all be exhibited.

Free admission tickets to all oil men, engineers and superintendents.

No increase in hotel rates during the Exposition.

Write for particulars, free tickets and hotel reservations.

На этой выставке будут демонстрироваться наиболее современные методы и новейшее оборудование для бурения, добычи, нефтеперегонки и для прокладки трубопроводов; также новые усовершенствования и новое оборудование, специально предназначенное для контроля высокого давления газа и предупреждения выбросов в бурящихся скважинах, каковое оборудование применялось для разрешения многих проблем на промыслах районов Техаса и побережий Луизианы и Техаса. Крупные заводчики средних штатов и особенно восточной части штата Техас разработали и выпустили на рынок насосное оборудование новейшей конструкции, применяемое на промыслах восточного района Техаса. Будет также фигурировать новейшее оборудование для трубопроводов и для сварки таковых, применяемое как заграницей, так и на всех промыслах Соединенных Штатов и, особенно, на крупнейших в мире промыслах восточного Техаса. Будут экспонироваться газолиновые заводы и нефтеперегонное оборудование, инструменты, оборудование мастерских, лебедки и проч.

Безплатные входные билеты будут предоставлены нефтепромышленникам, инженерам и заведующим промыслами.

Цены на номера в гостиницах не будут повышены.

Обратитесь к нам за справками о безплатных входных билетах и о резервировании номеров в гостиницах.

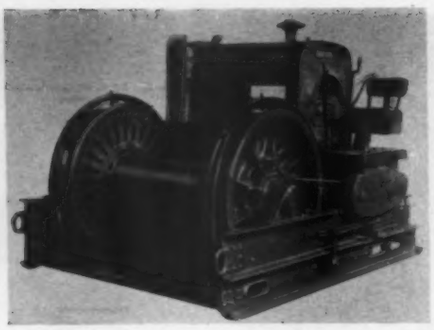
Los métodos y los equipos más adelantados para la perforación, producción, refinamiento y distribución por línea, del petróleo y sus derivados, se exhibirán en esta Exposición Técnica. También se exhibirán en ella, nuevos aditamientos y accesorios especiales, destinados a evitar las grandes presiones gaseosas y reventazone, en sondeaje o perforación de pozos, tales como los que se han utilizado últimamente para resolver estos serios problemas en los campos petrolíferos de Texas, costa de Luisina y otros lugares. Especiales equipos de bombas se han desarrollado por importantes fabricantes en los estados centrales y este de Texas, en los Estados Unidos, que se emplean en esta última región, con satisfactorios resultados. Nuevos equipos para tubería incluyendo adelantados procedimientos de soldadura, se emplean también en esta rica región y en algunas zonas petrolíferas en el extranjero. En esta importante exposición se exhibirán los más recientes modelos de equipos para refinerías de nafta o gasolina, incluyendo instrumentos diversos, elementos de taller, máquinas izadoras y arrastradoras, grúas, y otros accesorios.

Admisión gratuita a todo dueño, ingeniero, superintendente y empleado de empresa petrolera.

No habrá aumento de precio en hospedaje durante los días de la exposición.

Pídanos información detallada, boletas de admisión gratis y tarifas de hoteles.

OIL EQUIPMENT & ENGINEERING EXPOSITION
Petroleum Building
HOUSTON, TEXAS



MUSKOGEE IRON WORKS SKID TYPE OIL FIELD HOIST

Muskogee Iron Works manufacture a complete line of Skid Type, Heavy Duty Oil Field Hoists, especially designed and built for oil field service—pumping rods and tubing, bailing, swabbing and light clean-out work. M.I.W. Hoists have been proven by major operators for many years in the producing fields of the United States and other countries.

M.I.W. Skid Type Hoists are made in the following models:

Model "C" for servicing wells up to 2750'; drum capacity 2550' of ⅝" steel cable.

Model "A" for servicing wells up to 5000'; drum capacity 6260' of ⅝" steel cable.

Model "E-36" for wells up to 5500'; drum capacity 7750' of ⅝" steel cable.

Model "E-48" for wells up to 6800'; drum capacity 15,800' of ⅝" steel cable.

Model "D" for the world's deepest wells to date; drum capacity 8500' of 1" steel cable.

Muskogee Iron Works manufacture and carry in stock a complete line of A.P.I. Steel Derricks, Rig Fronts and Sub-structures for immediate shipment.

Фирма MUSKOGEE IRON WORKS изготовляет полный набор лебедок, монтированных на салазках и специально сконструированных для тяжелой работы на нефтяных промыслах. Они пригодны для спуска и подъема насосных штанг и насосных труб, для работы желонкой, свабирования и легких работ по очистке скважин. Лебедки M.I.W. втечение многих лет с успехом применяются крупными операторами на нефтяных промыслах США и других стран.

Лебедки M.I.W., монтированные на салазках, изготовляются следующих моделей:

Модель "C" для обслуживания скважин глубиною до 2750 фут.; канатный барабан пригоден для 2550 фут. стального каната в ⅝".

Модель "A" для скважин глубиною до 5000 фут.; канатный барабан пригоден для 6260 фут. стального каната в ⅝".

Модель "E-36" для скважин глубиною до 5500 фут.; канатный барабан пригоден для 7750 фут. стального каната в ⅝".

Модель "E-48" для скважин глубиною до 6800 фут.; канатный барабан пригоден для 15800 фут. стального каната в ⅝".

Модель "D" для самых глубоких скважин мира существующих до настоящего времени; канатный барабан пригоден для 8500 фут. стального каната в 1".

Фирма MUSKOGEE IRON WORKS изготовляет и имеет на складе полный набор стальных вышек, половых и подземных креплений стандарта A. P. I. (Американский Нефтяной Институт), готовых для немедленной отправки.

La Muskogee Iron Works construye un completo surtido de grúas con montaje en patín, para servicio pesado, especiales para trabajos petrolíferos, que se presta a toda operación de instalación de tubería, limpieza, etc. Las grúas M. I. W. han dado espléndidos resultados durante muchos años al servicio de muchos campos petrolíferos en los Estados Unidos y el extranjero.

Las grúas M. I. W. sobre patines o resbaladeras se hacen en los modelos siguientes:

Modelo "C" para servicio de pozos hasta de 2750 pies; capacidad del tambor, 2550 pies de cable de acero de ⅝".

Modelo "A", para servicio de pozos hasta de 5000 pies; capacidad del tambor, 6260 pies de cable de acero de ⅝".

Modelo "E-36" para pozos hasta de 5500 pies; capacidad del tambor, 7750 pies de cable de acero de ⅝".

Modelo "E-48" para pozos hasta de 6800 pies. capacidad del tambor, 15.800 pies de alambre de acero de ⅝".

Modelo "D" para los pozos más profundos del mundo; capacidad del tambor, 8500 pies de cable de acero de 1".

La Muskogee Iron Works fabrica y mantiene en existencia un surtido completo de torres de acero, plataformas y subestructuras, para inmediato embarque.

La "Muskogee Iron Works" fabrique un assortiment complet de palans pour champs pétrolifères, du type à patin, pour service intensif. Ces palans sont conçus et construits spécialement pour l'exploitation des champs pétroliers—Ils se prêtent à tous genres de travaux: installation des tubes, écoupage, torchonnage, épuisement léger des puits, etc. Les palans M. I. W. ont prouvé leur supériorité au cours des nombreuses années que les exploitants pétroliers principaux en font usage dans les champs pétrolifères des Etas-Unis et des autres pays producteurs de pétrole.

Les palans à patin M. I. W. sont fabriqués en les modèles suivants: 2750 pieds; capacité de tambour 2550 pieds de câble d'acier de ⅝ de pouce.

Modèle "A" pour le service de puits jusqu'à concurrence de 500 pieds; capacité de tambour 6260 pieds de câble d'acier de ⅝ de pouce.

Modèle "E-36" pour le service de puits jusqu'à concurrence de 5500 pieds; capacité de tambour 7750 pieds de câble d'acier de ⅝ de pouce.

Modèle "E-48" pour le service de puits jusqu'à concurrence de 6800 pieds; capacité de tambour 15.8000 pieds de câble d'acier de ⅝ de pouce.

Modèle "D" pour le service des puits les plus profonds qu'on ait jamais creusés dans le monde jusqu'ici; capacité de tambour 8500 pieds de câble d'acier d'un pouce.

La "Muskogee Iron Works" fabrique et maintient un stock offrant un assortiment complet de grues d'acier A. P. I., plateformes et structures souterraines, pour embarquement immédiat.

Write for Detailed Information

MUSKOGEE IRON WORKS

STEEL DESIGNERS MIW FABRICATORS—ERECTORS

MUSKOGEE OKLAHOMA, U.S.A.

HARD METALS AND WELDING RODS

The Stoody Company at Whittier, California, has been serving the major oil companies in the United States and foreign fields for more than ten years. Its entire line of hard metals, welding rods and equipment are designed especially for use in the oil fields.

Since 1927, when the use of Borium produced such startling results in oil well drilling, many new products and applications have been brought out.

The latest developments are Pea, Shape and Tube Borium for electric application, coated Stoodite, Silfram and Self-hardening for better electric applications, Borium sand blast nozzles, and a new type of grinding machine.

Although Stoody products have been adopted by many other industries, further proving the great value of Stoody metals and equipment, the first thought in a new Stoody development or practice is: "How will it benefit the oil industry?"

Фирма STOODY COMPANY, WHITTIER, CALIFORNIA обслуживает более десяти лет нефтепромышленные фирмы Соединенных Штатов и заграничные нефтяные промысла. Все твердые металлы, прутья для сварки и прочее оборудование, изготовляемое этой фирмой, предназначается специально для нужд нефтяных промыслов.

Начиная с 1927 года, когда применение борнума дало такие поразительные результаты при бурении нефтяных скважин, фирма выпустала на рынок большое количество новых продуктов.

К таковым относятся: Борнум в форме бобов и трубчатый Борнум, которые привариваются к инструментам электрическим способом; Студайт и Сульфрам для наварки на инструменты и самозакаливающаяся сталь для приварки электрическим способом; ниппели из Борума для песко-струйных аппаратов и шлифовальная машина нового образца.

Продукты фирмы STOODY COMPANY применяются также и в других индустриях, чем еще больше подтверждается их ценность. Однако, при каждом выпуске нового продукта первой мыслью фирмы является: «Поскольку продукт будет полезен для нефтяной промышленности».

La Stoody Company en Whittier, California ha estado sirviendo por más de diez años a las compañías más grandes de petróleo de los Estados Unidos y de países extranjeros. Su surtido completo de metales duros y varillas soldadoras y equipos están hechos especialmente para servir en los campos de petróleo.

Desde 1927, cuando se hizo uso del Borio, produjo tan sorprendentes resultados en las perforaciones de pozos de petroleo, que muchos nuevos productos y aplicaciones han salido a luz.

Los productos más recientes son: formas y tubos de Borio para aplicación eléctrica, revestimientos de Stoodite, Silfrana y de endurecimiento automático para las mejores aplicaciones eléctricas. Empalmes y boquillas de Borio para chorros de arena a presión y un nuevo tipo de máquina afiladora.

No obstante que los productos Stoody han sido adtoptados por otras muchas industrias, el primer pensamiento de los nuevos desarrollos y prácticas Stoody, ulteriormente, han comprobado el gran valor de los metalles Stoody en: "Como beneficiar la industria del petróleo."

La Stoody Company à Whittier, Californie, sert les plus importantes compagnies pétrolifères des Etats-Unis et de l'étranger depuis plus de dix ans. Sa collection entière de métaux durs, de baguettes à souder et d'équipment est constituée spécialement en vue de l'emploi sur les champs pétrolifères.

Depuis 1927, date à laquelle l'emploi du Borium commençait à donner des résultats surprenants dans le forage des puits pétrolifères, de nombreaux produits nouveaux et applications nouvelles ont vu le jour.

Les produits récemment mis au point comprennent les formes et les tubes de Borium pour les emplois électriques, les revêtement de Stoodite, de Silfram et auto-trempants pour les applications électriques supérieures, les tuyères à sable en borium et un nouveau modèle de machine à meuler.

Bien que les produits Stoody aient été adoptés par un grand nombre d'autres industries, ce qui fait ressortir encore davantage la grande valeur représentée par les métaux et l'équippement Stoody, la pensée qui ne cesse de dominer la mise Stoody est toujours: "En quoi ce produit bénéficiera-t-il l'industrie pétrolifère?"

STOODY COMPANY
WHITTIER, CALIF., U.S.A.

USE THE HIGH POWERED ADSORBENT

In the petroleum oil industry Filtrol is the outstanding decolorizing adsorbent. Here are the reasons:

1. High decolorizing value—Filtrol does the work with one-third the dosage required of fuller's earth.
2. Its oil retention is unusually low.
3. Filtrol gives steady filtration—no need for high filter pressures; filter-aids of fuller's earth admixtures are unnecessary.

Filtrol is a powerful agent in the refining and stabilizing of petroleum oils by contact methods.

В нефтяной индустрии Filtrol является выдающимся обесцвечивающим абсорбентом.

Причины этому следующие:

1. Высокая обесцвечивающая способность, при которой, для производства одной и той-же работы, требуется всего треть Filtrol'a, по сравнению с количеством фильтровальной земли.
2. Поглащаемость нефти Filtrol'ем необычно низка.
3. Filtrol'ем достигается постоянная фильтрация — без необходимости высоких фильтровальных давлений; также нет необходимости вводить добавки, помогающие фильтрации или вводить фильтровальную землю.

Filtrol является сильным агентом для вчистки и стабилизации контактным методом.

En la industria del aceite de petróleo, Filtrol es el absorvente descolorante más sobresaliente. Sus ventajas son las siguientes:

1. Gran capacidad descolorante. El Filtrol hace el trabajo con una tercera parte de la cantidad de tierre Fuller requerida para el mismo objeto.
2. Su retención de aceite es extraordinariamente reducida.
3. Filtrol produce una filtración contínua. No hay necesidad de altas presiones. No hay necesidad de substancias suplementarias. Filtrol es un agente poderoso en la refinación y estabilización de aceites de petróleo por métodos de contacto.

Filtrol est, dans l'industrie du pétrole, l'adsorbant décolorant d' emploi le plus fréquent. Voici les raisons qui expliquent sa grande popularité:

1. Son grand pouvoir décolorant—Filtrol produit son effet avec un dosage trois fois plus faible que celui demandé par l'emploi de la terre à foulon.
2. La quantité de pétrole retenue par Filtrol est des plus faibles.
3. Filtrol assure une filtration régulière —il n'est nullemen besoin d'avoir recours à de hautes pressions de filtrage; de même, l'emploi de filtres auxiliaires et l'addition de terre à foulon sont tout à fait inutiles.

Filtrol est un agent puissant dans le raffinement et la stabilisation des pétroles au moyen des procédés de contact.

FILTROL COMPANY
of California
315 West 5th St.,
Los Angeles, Calif., U.S.A.
Cable Address: "Filtrol Los Angeles"

ALLSTEEL PRODUCTS

Portable Draw Works—Portable Pulling Winches—Pipe Line Booms
See Advertisement, Page Two, This Issue

Allsteel Products Manufacturing Company manufacture their products under the "Cardwell-Allsteel" Trade Mark of highest quality materials. Simplicity in design eliminates surplus parts. Re-inforced frames, at points where strength is needed, eliminates excess weight where excess strength is not needed, resulting in portable units with minimum weight.

In these simply designed units are found anti-friction Timken and Hyatt Bearings, alloy heat treated shafts, and many original features, at lower costs, than are usually found without these valuable long life features.

These Oil Well Servicing Winches are available for wells of any depth, and may be powered by natural gas, butane, gasoline, Diesel, or electric prime movers; in sizes from 42 to 160 horsepower, in skid-type, easily portable units.

There are also five sizes for mounting on Caterpillar Tractors.

All Models, except one small skid-type, and one small tractor type, are available in double drum units—with, or without spudding attachment.

Portable Draw Works are available in four sizes for rotary drilling to four thousand foot depths. The Portable Draw Works Units are available with spudding attachment, and double drum, making a combination rotary and standard tool drilling unit which eliminates much of the expense incident to moving in and moving out of the conventional rig front and built up draw works.

Cardwell Allsteel Pipe Line Booms and Back Fillers for mounting on all sizes of Caterpillar Wide Gauge Tractors are known the world over.

All of the "Cardwell Allsteel" Products are built in volume production, through which prices are found much lower, and deliveries are prompt.

Additional information gladly furnished.

Фирма ALLSTEEL PRODUCTS MANUFACTURING COMPANY изготовляет свои продукты под маркой "Cardwell-Allsteel" из материалов самого высокого качества. Простота конструкции устраняет излишние части механизмов. Благодаря тому, что рамы усилены только в тех местах, где требуется крепость, нет излишнего веса там, где не требуется излишней прочности. В результате получаются переносные установки с минимальным весом.

В этих машинах простой конструкции имеются анти-фрикционные подшипники Timken и Hayatt., термически обработанные валы из специальных сплавов и многие другие достоинства. При этом, цена их более низкая, чем обычно уплачивается за машины, не имеющие всех этих деталей.

Лебедки для нефтяных скважин изготовляются для любых глубин и могут быть снабжены двигателями, работающими естественным газом, бутаном, газолином, либо Дизель-моторами или электромоторами. Размер установок колеблется от 42 до 160 лошадиных сил. Они монтированы на салазках и легко переносятся.

Также имеется пять размеров лебедок, устанавливаемых на тракторах Caterpillar.

Все модели, за исключением одной маленькой модели на салазках и одной маленькой модели тракторного типа, поставляются с двумя барабанами и могут быть снабжены приспособлением для работы оттяжкой.

Переносные лебедки для вращательного бурения изготовляются четырех размеров для работы до 4000 фут. глубины. Эти переносные лебедки могут быть снабжены приспособлением для работы оттяжкой и двумя барабанами, благодаря чему получается комбинированная установка для работы вращательным или канатным способом. Это устраняет многие расходы, связанные с вывозом из вышки одной лебедки и установкой другой.

Стрелы Cardwell-Allsteel для укладки нефтепроводов и засыпатели грунта, устанавливаемые на ширококолейных тракторах Caterpillar всех размеров, — известны по всему миру.

Все продукты "Cardwell-Allsteel" изготовляются в массовых количествах, благодаря чему достигается более низкая продажная стоимость и скорость доставки.

Мы с удовольствием готовы дать дополнительные информации.

La Allsteel Products Manufacturing Company fabrica sus productos bajo la marca comercial de "Cardwell-Allsteel", sinónima de lo mejor en calidad. La sencillez en proyecto y construcción reduce a un mínimo el número de piezas. Los armazones reforzados en los puntos en que se requiere firmeza, evitan el exceso de peso en los puntos en que no hay necesidad de adicional resistencia. Por esta razón, el equipo, gracias a su peso mínimo, resulta muy portátil.

En estos productos de sencilla construcción se hallan colinetes Timken y Hyatt, arboles de aleación de acero de especial tratamiento térmico y varios otros rasgos importantes, a menor costo que en otros similares que se suministran generalmente sin semejantes ventajas.

Estos montacargas o tornos para trabajos petrolíferos se ofrecen para pozos de toda profundidad y pueden accionarse con gas natural, butane, gasolina, motor Diésel y motores eléctricos. Los hay de 42 a 160 caballos de fuerza, en tipo de resbaladera o patín muy fácil de trasladar.

Hay también cinco tamaños para instalación sobre tractores Caterpillar.

Todos los modelos, con excepción de uno pequeño de tipo de patín y de otro pequeño de instalación sobre tractor, se ofrecen en modelos de tambor doble, provistos de aditamiento especial de cable, o sin él.

Las máquinas giratorias de tracción portátiles se ofrecen en cuatro tamaños para la perforación rotatoria de pozos hasta de cuatro mil pies de profundidad. Las máquinas giratorias de tracción portátiles se ofrecen con aditamientos especiales para cable y tambor doble, constituyendo combinaciones de equipo rotativo y de equipo corriente, que evitan gran parte del gasto implicado en instalar y desmontar los equipos.

Los aguilones para tubería y los rellenadores Cardwell Allsteel, para montaje en todos los tamaños de tractores Caterpillar de vía ancha, son conocidos en todas partes del mundo.

Todos los productos Cardwell Allsteel se fabrican en grande escala. Por esta razón, resultan más económicos sus precios y más rápidas sus entregas.

Gustosamente suministraremos información adicional a quien se sirva pedirla.

La Allsteel Products Manufacturing Company fabrique ses produits de marque "Cardwell-Allsteel" avec des matières de toute première qualité. La simplicité de leur conception supprime toute pièce inutile et des bâtis renforcés aux endroits nécessaires de façon à éviter le poids en surplus, assurent la facilité de déplacement des appareils.

Cet appareillage comporte des roulements Timken et Hyatt, des arbres en alliages traités et un grand nombre d'avantages à des prix plus bas qu'on ne demande généralement pour ce genre de matériel.

Ces treuils sont livrés pour puits pétrolifères de toutes profondeurs et peuvent fonctionner au gaz naturel, au butane, à l'essence ou par moteur Diesel ou électrique. Modèles de 42 à 160 CV, montés sur madriers et facilement déplaçables. Cinq modèles pour montage sur tracteur Caterpillar.

Tous les modèles, sauf le plus petit sur madriers et un des petits treuils pour tracteur, sont livrés avec deux tambours, avec ou sans dispositif à percussion.

Les machines d'extraction sur roues sont fournies en quatre dimensions pour forage rotatif à quatre mille pieds de profondeur. Munies de dispositif à percussion et de deux tambours, elles constituent un appareil mixte rotatif et à forer supprimant les frais de pose et de démontage des derricks et de la machine.

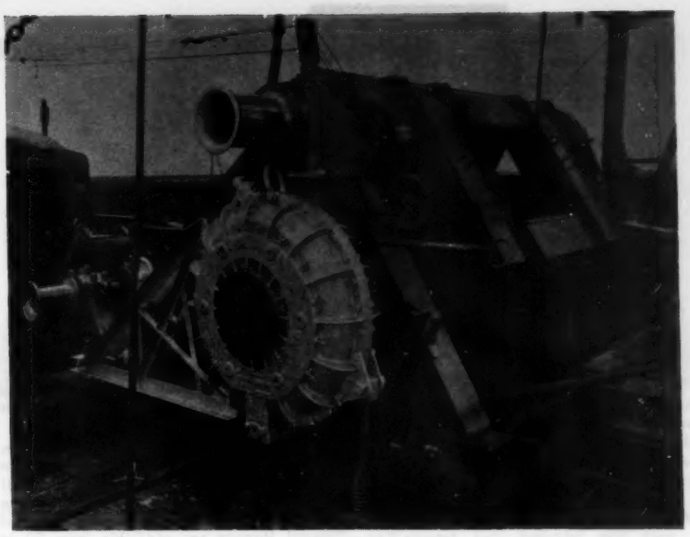
Les mâts Cardwell Allsteel à pipelines et les remblayeurs de cette marque pour montage sur tracteurs Caterpillar à voie large sont fameux dans le monde entier.

Tous les produits Cardwell Allsteel sont construits en grande série à des prix très réduits. Promptes livraisons. Renseignements supplémentaires sur demande.

ALLSTEEL PRODUCTS MFG. COMPANY

WICHITA, KANSAS, U.S.A.

Cable Address: **"ALLSTEEL"—Bentley's Code.**



PARKERSBURG HYDROMATIC BRAKE

The Hydromatic is entirely different from any brake heretofore used in the oil fields. Its resistance is secured by fluid friction resulting from the circulation and agitation of fluid within an enclosed housing. Energy developed by the descending load is imparted to the fluid by a revolving rotor and is dissipated in the form of heat caused by fluid friction. There is no mechanical or dry friction nor are there any wearing surfaces to be replaced as in the case of mechanical brakes. It does not operate under pressure and is entirely safe.

The installation of a Hydromatic will practically eliminate wear on mechanical brake lining and drums. It materially reduces the shocks and jars usually prevalent during braking actions and as a consequence prolongs the life of wire line and other equipment.

The Hydromatic is equally successful on Drawworks, Sand Reels or Bull Wheels.

For complete information send for Booklet G-10-34.

Тормаза "Hydromatic" существенно отличаются от всех других тормазов, применяемых до сего времени на нефтяных промыслах. Их сопротивляемость получается от трения жидкости во время циркуляции и колебания таковой внутри закрытой камеры. Энергия, получаемая при спуске груза, передается жидкости при помощи вращающегося ротора и переходит в нагрев, происходящий от трения жидкости. В этих тормазах нет механического или сухого трения, так же как нет и срабатывающихся поверхностей, которые приходилось бы сменять, как это имеет место при механических тормазах. Тормаза "Hydromatic" не работают под давлением и совершенно безопасны.

При установке тормазов "Hydromatic" исключается износ тормазных колодок и барабанов механических тормазов. Они значительно уменьшают толчки и дергание, обычно происходящие при торможении; в результате этого удлиняется срок службы стальных канатов и прочего оборудования.

Тормаза "Hydromatic" работают с одинаковым успехом на бурильных лебедках, чистильном барабане и инструментальном барабане.

Для полных информаций требуйте наш бюллетень G-10-34.

El freno hidromático es un modelo completamente diferente de todo otro freno empleado hasta ahora en los campos de petróleo. Su resistencia se asegura, gracias a su montaje de rozamiento de flúido, que resulta de la circulación y de la agitación del líquido en el interior de una caja completamente cerrada. La energía desarrollada por la carga descendente se comunica al líquido por un rotor giratorio y se disipa en la forma de calor causado por el rozamiento del líquido. No hay ningún roce o fricción mecánica o seca y tampoco hay superficies expuestas a desgastes y que necesiten reemplazarse periódicamente, como sucede en el caso de los frenos mecánicos. No funciona bajo presión y es completamente seguro.

La instalación del freno hidromático pone fin a casi toda forma de desgaste de forro y de tambor de freno mecánico. Este modelo de freno reduce considerablemente las trepidaciones y choques que ordinariamente se producen en el enfrenamiento y por esta razón, su uso se traduce por una duración mucho más prolongada del cable y otros equipos auxiliares.

El freno hidromático da resultados igualmente satisfactorios en grupos de tracción, en equipos de arena y en ruedas de entrenamiento.

Para información detallada, sírvase pedirnos nuestro folleto G-10-34.

Le frein Hydromatique est d'un modèle entièrement différent de tout autre frein employé jusqu'ici dans les champs de pétrole. Sa résistance est assurée grâce au montage à friction de fluide, qui résulte de la circulation et de l'agitation de fluide à l'intérieur d'un carter complètement enfermé. L'énergie développée par la charge descendante se communique au fluide par un rotor tornant et se dissipe sous la forme de chaleur cause par friction de fluide. Il n'y a aucune friction mécanique ou friction sèche, pas plus qu'il n'y a de surfaces subissant l'usure et devant périodiquement se remplacer, comme c'est le cas pour les freins mécaniques. Il ne fonctionne pas sous pression et est de toute sécurité.

L'installation du frein hydromatique met fin à presque toute forme d'usure, qu'il s'agisse de la garniture de frein ou des tambours de frein. Ce modèle de frein réduit considérablement les trépidations et les ébranlements qui accompagnent habituellement le freinage, et son adoption se traduit, par suite, par une durée d'emploi plus longue du câble et autre appareillage employés.

Le frein Hydromatique donne des résultats aussi satisfaisants, qu'il s'agisse de groupes de traction, de dévidoirs de sable, ou de roues d'entrainement.

Pour vous assurer des renseignements complets, demandez-nous notre Livret G-10-34.

THE PARKERSBURG RIG AND REEL COMPANY

Main Office: **Parkersburg, W. Va., U.S.A.**
Export Office: **19 Rector St., New York, N. Y., U.S.A.**
Cable Address: **"PARIGREEL"**

LUFKIN PUMPING UNITS

The first Lufkin geared unit for the production of oil was installed in a Gulf Coast field in 1924. This was the first reduction geared unit to ever successfully operate in deep production. Since that time Lufkin Units have been installed in every major oil field of the world and today is considered standard equipment by over one hundred and twenty-five major and minor oil companies operating in domestic and foreign fields. So completely has the LUFKIN GEARED UNIT revolutionized the method of pumping oil wells, that it is now conceded, by Engineers high in the industry, that where sucker rods and working barrels are used, Geared Units are the modern accepted medium by which power is transferred from the prime mover to the polish rod.

Lufkin Geared Units are of two types, namely: Herringbone Gear and worm gear and manufactured in sizes to suit any field from very shallow production to the world's deepest wells. Central Geared Powers are available from 50 to 150 H.P. in both worm and Herringbone geared types.

Auxiliary equipment such as Hoists, Beams, Posts, Pitmans, Hold-Ups, Hold-Downs, Knock-out Posts, Swings, Rod Line Carriers and Jacks—all of improved design are a part of the complete line of Lufkin Production Equipment.

Первая одиночная качалка LUFKIN для откачки нефти, работающая передаточными шестернями была установлена на промыслах Gulf Coast в 1924 году. Это была первая установка с редукционными шестернями, которая работала с успехом при глубокой откачке. С тех пор одиночные качалки LUFKIN применяются на всех крупных промыслах всего мира. В настоящее время более ста двадцати пяти крупных и мелких нефтепромышленных фирм, работающих здесь и заграницей, считают эти установки стандартными. ОДИНОЧНЫЕ КАЧАЛКИ LUFKIN с ШЕСТЕРНЯМИ настолько революционизировали методы откачки нефти, что известные инженеры нефтяной промышленности считают, что там, где работают насосные штанги и глубокие насосы, необходимо иметь одиночные качалки с редукционными передаточными шестернями, которые служат как мидиум передачи энергии от двигателя к полированной штанге насоса.

Фирма LUFKIN строит одиночные приводные качалки двух типов, а именно: с елочными шестернями и с червячными шестернями, причем она изготовляет их разных размеров, пригодных для очень неглубоких и для самых глубоких скважин мира. Центральные приводы с передаточными шестернями строятся мощностью от 50 до 15 лошадиных сил, как с елочными, так и с червячными шестернями.

Фирма LUFKIN также строит следующее дополнительное насосное оборудование усовершенствованной конструкции: лебедки, балансиры, стойки, шатуны, верхние упоры, нижние упоры, ударные стойки, шарнирные соединения, поддержки для насосных тяг и натяжки для насосных тяг.

El primer mecanismo LUFKIN para la producción de petróleo fué instalado en un campo petrólifero de la costa del Golfo en el año de 1924. Esta fué la primera máquina de engranajes de reducción que nunca, hasta entonces había trabajado co éxito en la producción profunda. Desde entonces, las máquipas LUFKIN han sido instaladas en en la mayor parte de los campos petrolíferos del mundo y en la actualidad se consideran como equipo normal en más de ciento veinticinco compañías petroleras grandes y pequeñas, trabajando en el país y en el extranjero. Las máquinas LUFKIN han revolucionado tan completamente el método de extraer con bomba el petróleo, que en la actualidad, ingenieros prominentes en la industria conceden que en donde se usan varillas de aspiración y cucharas de acción, las máquinas de engranajes son el medio aceptado por el cual se transmite del motor a la varilla pulidora.

Los mecanismos LUFKIN son de dos tipos: Con engranajes del tipo de espina de pez y de engranaje de tornillo sin fin, y se fabrican de los tamaños propios para la producción en pozos poco profundos hasta los pozos más profundos del mundo. Hay disponibles motores de engranajes centrales desde 50 hasta 150 caballos, en ambos tipos, los de engranajes de espinazo de pez y los de tornillo sin fin.

Le premier groupe à engrenages Lufkin pour la production du pétrole a été installé dans un champ pétrolifère de la Côte du Golfe en 1924. C'est là la première machine à engrenages de réduction qui ait été employée avec succès dans l'exploitation pétrolifère en profondeur. Depuis lors, les machines Lufkin ont été installées dans tous les champs pétrolifères les plus importants du monde et ont été adoptées comme équipement standard par plus de cent-vingt-cinq compagnies pétrolifères, les unes importantes, les autres de moindre importance, travaillant à l'exploitation de champs aux Etats-Unis et à l'étranger. La MACHINE A ENGRENAGES LUFKIN a révolutionné la méthode de pompage des puits pétrolifères à un tel point que les Ingénieurs en chef de l'industrie reconnaissent maintenant que partout où l'on emploie les tiges d'aspiration et les barillets moteurs, les Appareils à Engre-

Les Groupes à Engrenages Lufkin sont de deux types différentes, à savoir: le type à engrenages à chevrons et le type à engrenages à vis sans fin, et se fabriquent dans des grandeurs les plus diverses pour s'adapter aux conditions de tout champ pétrolifère, depuis l'exploitation en surface jusqu'à l'exploitation au moyen de puits d'une profondeur atteignant celle des sondes les plus longues du monde. On peut obtenir des Moteurs à Engrenages centraux de 50 à 150 H.P. tant du type à vis sans fin que du type à chevrons.

L'équipement accessoire, qui comprend entre autres des treuils, des poutres, des poteaux, des bielles de connexion, des dispositifs de support, des poteaux de dégagement, des dispositifs oscillants, des supports de ligne de Tige et des crics—tous accessoires d'une contruction perfectionnée—fait partie de la collection complète de l'Equipement de Production Lufkin.

LUFKIN FOUNDRY & MACHINE CO.
LUFKIN, TEXAS, U.S.A.

Haystellite is a cast tungsten carbide developed as a diamond substitute for protecting the cutting edges of oil well drilling tools from wear. In the form of small inserts, Haystellite is available in the eleven uniform sizes shown above.

Haystellite is almost as hard as the diamond and is the toughest of all tungsten carbides made for the oil fields. It is tough enough to withstand the most severe impacts encountered at the bottom of the hole without shattering or flaking off. Its use has become world-wide resulting in fast drilling and straight, out-to-gauge hole with long life between round trips.

Haystellite Composite Rod or Tube Haystellite is used as a final coating over the Haystellite inserts for lengthening the life of the cutting edges of tools. Composite Rod consists of hard, irregular shaped pieces of crushed and screened Haystellite distributed uniformly in a welding rod binder of high test steel. Tube Haystellite consists of particles of Haystellite enclosed in tubes of high test steel.

Oil well tools protected with Haystellite and Haystellite Composite Rod or Tube Haystellite are daily making drilling records in all types of formation in all the principal oil fields.

Haystellite представляет собою сплав тонгстина и углерода и заменяет алмазы, предохраняя от износа режущие кромки бурильных инструментов. Он вставляется в режущие кромки в форме маленьких однородных кусочков, которые изготовляются одиннадцати разных размеров, указанных на иллюстрации помещенной выше.

Haystellite почти также тверд, как алмаз и является наиболее твердым из всех углеродистых тонгстинов, изготовляемых для нефтяных промыслов. Он достаточно тверд чтобы выдерживать без откалываний и без поломок самые тяжелые условия, встречающиеся на забое скважин. Он применяется на нефтяных промыслах всего мира и им достигается быстрое и прямолинейное бурение при скважинах полного диаметра. При этом, получается более продолжительная работа между двумя сменами инструментов.

Прутки из композиции Haystellite'a и трубчатый Haystellite применяются для окончательной облицовки поверх вкрапленных кусочков Haystellite'a с целью удлинения срока службы режущих кромок инструментов. Прутки из композиции состоят из твердых кусков Haystellite'a неправильной формы или из кусочков раздробленного и просеянного Haystellite' равномерно распределенных в сварочном прутке и связанных между собою сталью высокого качества. Трубчатый Haystellite состоит из кусочков Haystellite'a заключенных в трубке из стали высокого качества.

Бурильные инструменты, защищенные Haystellite'ом и прутками из композиции Haystellite'a либо трубчатым Haystellite'ом, дают ежедневно рекордные проходки в любых формациях и на всех самых крупных нефтяных промыслах.

Haystellite es un carburo de tungsteno fundido, desarrollado como un substituyente del diamante, para proteger los bordes cortantes de las herramientas perforadoras de pozos contra prematuro desgaste. En la forma de inserciones pequeñas, el Haystellite se ofrece en los once tamaños uniformes mostrados arriba.

El Haystellite es casi tan duro como el diamante y es el más resistente de todos los carburos de tungsteno que se hacen para campos petrolíferos. Es bastante resistente para aguantar los golpes más severos que se encuentren al fondo del agujero, sin trizarse ni separarse. Su uso se ha hecho universal, produciendo perforaciones rápidas y rectas, de diámetro exacto, con gran duración entre los viajes.

La varilla de composición Haystellite o tubo Haystellite se emplea como revestimiento final sobre las inserciones Haystellite para prolongar la duración de los bordes o filos cortantes de las herramientas. La varilla de composición consiste de piezas duras de formas irregulares de Haystellite triturado y cernido distribuido uniformemente en una varilla de soldadura de acero de alta velocidad. El tubo Haystellite consiste de partículas de Haystellite incluídas en tubos de acero de alta velocidad.

Las herramientas de pozos petrolíferos protegidas con Haystellite y varilla de composición Haystellite o tubo Haystellite están a diario estableciendo nuevos precedentes en perforación en todo tipo de formación en los principales campos petrolíferos.

Haystellite est un carbure de tungstène coulé, qui a été mis au point comme succédané du diamant afin de protéger les arêtes tranchantes des outils de forage de puits pétroliers contre l'usure. Sous la forme de petites pièces rapportées, Haystellite est offert dans les onze grandeurs uniformes représentées ci-dessus.

Haystellite est presque, aussi dur que le diamant et est le plus résistant de tous les carbures de tungstène fabriqués pour emploi sur les champs pétrolifères. Il est si dur qu'il peut résister aux chocs les plus violents subis au fond du puits de forage, et cela sans se fendiller ou montrer le moindre craquèlement. Son emploi s'est diffusé dans le monde entier, et partout il a assuré un forage plus rapide, des puits de forage rectilignes et à la cote, et un service durable entre les cycles d'exploitation.

La tige composée Haystellite, ou tube Haystellite, s'emploie comme revêtement final au-dessus des pièces rapportées Haystellite, et cela afin de prolonger la durée d'emploi des arêtes tranchantes des outils. La tige composée consiste de morceaux durs, de formes variées, d'Haystellite broyé et tamisé, répartis uniformément au sein d'un liant de tige de soudure en acier de coefficients élevés. Le tube Haystellite consiste de particules d'Haystellite enformées dans des tubes d'acier de coefficients élevés.

Les outils de puits pétroliers qui sont protégés au moyen d'Haystellite, et de la tige composée Haystellite ou du tube Haystellite, établissent jour après jour des records de forage dans tous genres de formations géologiques et dans tous les principaux champs de pétrole en exploitation.

HAYNES STELLITE COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
General Office and Works—Kokomo, Indiana
Foreign Sales Department—New York City

SHARPLES CENTRIFUGAL PROCESSES for DEWAXING AND ACID TREATING PETROLEUM STOCKS

Recent changes in refining methods such as solvent extraction and the increased use of lower viscosity motor oils have created a demand for a more flexible dewaxing process. The Sharples Barisol Dewaxing Process, a development of the Sharples Specialty Co., meets these demands.

The Sharples Barisol Process is a solvent process using centrifuges for the wax separation. The new solvent used overcomes the inhibiting effect of asphalt on wax precipitation permitting the dewaxing of unrefined stocks.

The most crystalline wax may be handled by the new type of centrifuge. These advantages are obtained while retaining all of the merits of the Sharples Dewaxing Process for refined amorphous stocks.

The Sharples Barisol Process is especially valuable in dewaxing raw residue stocks (irrespective of the asphalt contents) to be followed by solvent extracting processes, yielding Zero (degrees F.) pour test on the refined oil.

The Sharples Barisol Process when operated on filtered cylinder stocks gives a substantially higher yield of Bright Stock than is obtainable by the Naphtha Process. When operating on paraffin distillates, wax containing less oil is obtained, thus reducing sweating stages and costs.

Sharples Petroleum Acid Treating Processes are used for the continuous treatment of undiluted heavy residues, distillate lubricating stocks, pressure distillates, solvent extracted stocks and in the manufacture of dielectric and white oils.

The Sharples Specialty Co. has developed Proportionometers for proportionately measuring acid, Mixers and Centrifuges for separating sludge, as well as other special equipment necessary for effective continuous acid treating.

The Sharples Specialty Co. maintain a semi-works plant for adapting and demonstrating its processes.

Новейшие изменения в методах перегонки, как например, обработка растворами и увеличивающееся потребление моторных масел низкой вязкости, — вызвали потребность более гибких процессов отделения воска. Процесс Sharples Barisol для отделения воска, разработанный фирмой Sharples Specialty Co. вполне отвечает этим требованиям.

В процессе Sharples Barisol, который представляет собою процесс растворения, воск отделяется при помощи центрофуг. Новый растворитель, который применяется в этом процессе, преодолевает задерживающее влияние асфальта на отделение воска, благодаря чему становится возможным отделять воск от сырья до перегонки.

При помощи центрофуг нового типа можно отделить наиболее кристаллизирующийся воск. Все эти преимущества получаются в дополнение к другим достоинствам процесса Sharples по отделению воска при очистке аморфных масел.

Процесс Sharples Barisol особенно ценен для отделения воска от сырых остатков (независимо от содержания в них асфальта), после чего ведется процесс очистки растворителем с испытанием текучести при температуре в 0° по Фаренгейту.

При применении процесса Sharples Barisol для фильтрации цилиндровых масел, получается значительно больший выход светлых масел, чем при других процессах. При парафиновых дистиллатах получается воск с меньшим содержанием масел, что уменьшает стадию потения и понижает стоимость продукта.

Процесс Sharples обработки кислотами применяется для непрерывной обработки неразжиженных тяжелых остатков, дистиллатов смазочных масел, pressure дистиллатов, масел отделенных растворителями, а также при изготовлении смазочных масел для электроаппаратов и белых масел.

Фирма Sharples Specialty Co. сконструировала пропорционометры, служащие для исследования кислот, смесители и центрофуги для отделения грязи, а также и другое специальное оборудование, необходимое для эффективного процесса непрерывной кислотной обработки.

Фирма Sharples Specialty Co. имеет показательный завод для экспериментов и демонстрации своих процессов.

Los recientes cambios en métodos de refinería, como la extracción por procedimiento disolutivo, y el creciente empleo de aceites de motor de menor viscosidad, han establecido demanda de un sistema más flexible para la extracción de la cera. El procedimiento de desenceración Sharples Barisol, ideado por la Sharples Specialty Co., satisface esta demanda.

El procedimiento Sharples Barisol es uno de disolución que se vale de centrífugas para la separación de la cera. El nuevo disolvente empleado se sobrepone al efecto de inhibición que el asfalto tiene sobre la precipitación de la cera, permitiendo la extracción de la cera de petróleos sin refinar.

La cera más cristalina puede manejarse por el nuevo tipo de centrífuga. Todas estas ventajas se obtienen mientras se retienen todos los méritos del procedimiento de desenceración Sharples para productos amorfos refinados.

El procedimiento Sharples Barisol es particularmente importante en la desenceración de residuos crudos, sin relación a su contenido de asfalto, seguida por procedimientos de extracción por disolvente, que den cero grado F. en ensayo de vaciado en el aceite refinado.

El procedimiento Sharples Barisol, al aplicarse a aceites de cilindro filtrados, da un rendimiento mucho mayor de aceite claro, que el que se obtiene por el procedimiento de nafta. Cuando se aplica a destilados de parafina, se obtiene cera que contiene menos aceite, reduciéndose así los trabajos de exhudación y gastos correspondientes.

El procedimiento Sharples de tratamiento de petróleo por ácido se emplea para el tratamiento continuo de residuos espesos sin diluir, aceites lubricants dístilados, destilados por presión, aceites extraidos por disolvente y en la manufactura de aceites dieléctricos y blancos.

La Sharples Specialty Co. ha perfeccionado proporcion ó metros para la medición proporcionada de ácido, mezcladoras y centrífugas para la separación del cieno, lo mismo que otros equipos especiales para el más efectivo tratamiento coantinuo por acido.

La Sharples Specialty Co. mantiene un establecimiento experimental para la adaptación y demostración práctica de sus procedimientos.

De récents changements apportés aux méthodes de raffinement, touchant notament à l'extraction des solvants et à l'emploi plus intensif des huiles de moteur de basse viscosité, ont créé une demande pour un procédé plus souple d'extraction des cires. Le procédé d'extraction des cires Sharples Barisol, mis au point par la Sharples Specialty Co., répond précisément à ces exigences.

Le procédé Sharples Barisol est un procédé employant les solvants et la centrifugation pour la séparation de la cire. Le nouveau solvant employé a raison de l'effet ralentisseur, de l'asphalte sur la précipitation de la cire, ce qui permet d'climiner les cires des lots non raffinés.

La cire la plus crystalline peut être maniée par le nouveau type de centrifugeuse. Ces avantages sont assurés tout en conservant tous les mérites du procédé d'extraction des cires Sharples appliqué aux lots amorphes raffinés.

Le procédé Sharples Barisol est particulièrement utile pour extraire la cire des lots résiduaires bruts (sans que la teneur en asphalte intervienne), pour être suivi de procédés d'extraction par solvants, donnant zéro (degré F.) à l'épreuve de versement effectué sur l'huile raffinée.

Le procédé Sharples Barisol donne, quand on l'applique sur des lots de cylindre filtrés, un rendement nettement supérieur d'essence claire qu'on ne peut l'obtenir par le procédé dit naphte. Quand on l'emploie sur les produits de distillation de la paraffine, on obtient une cire d'une teneur moindre en huile, ce qui réduit les opérations de suintement et partant les frais.

Les procédés Sharples de traitement à l'acide du pétrole sont employés pour le traitement continu des résidus lourds non dilués, des lost lubréfiants de distillation, des produits de distillation sous pression, des lots extraits au solvant, ainsi que dans la fabrication de huiles diélectriques et blanches.

La Sharples Specialty Co. a perfectionné des proportionomètres pour le dosage des acides, des mélangeuzes et des centrifugeuses pour la séparation des boues, ainsi que d'autres appareils spéciaux nécessaires pour assurer l'efficacité du traitement continu aux acides.

La Sharples Specialty Co. a une simili fabrique pour mettre au point et faire l'adaptation et la démonstration de ses procédés.

THE SHARPLES SPECIALTY CO.

2352 Westmoreland Street,
PHILADELPHIA, PA., U.S.A.

FIG. 410-A
U-Clamp Wedge Gate Valve

FIG. 1007
Double Disc Gate Valve

FIG. 395-D
Wedge Gate Valve

FIG. 395-A
Wedge Gate Valve

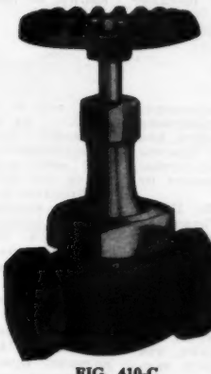


FIG. 410-C
Nickel Seat and Disc Valve

FIG. 450
Bronze Wedge Gate Valve

FIG. 283
Cast Iron Flanged Tee

FIG. 1896
Malleable Iron Ground Joint Flange Union

FIG. 57-H
Heavy Malleable Iron Elbow

JARECKI VALVES AND FITTINGS

JARECKI is one of the world's oldest and largest makers of pipe fittings, valves and special fittings, founded in 1852.

VALVES: The Jarecki line includes globe, wedge gate, double-disc gate, check, safety, and all other standard types of valves. Materials used include all-iron, iron body bronze-mounted, semi-steel and brass.

FITTINGS: The Jarecki line of fittings includes screw-end and flanged-end fittings of all standard types, in malleable iron, cast iron, brass and bronze.

JARECKI also makes pipe-threading machines, steam engine and compressor governors and unloaders, and all kinds of piping equipment. Write for catalog.

Фирма JARECKI, основанная в 1852 году, является одной из самых старых и самых крупных в мире по изготовлению трубной арматуры, задвижек и специальных фитингов.

ЗАДВИЖКИ: Изделия JARECKI включают: вентили прямые, задвижки с заслонкой, задвижки с двойным диском, приемные клапаны, предохранительные клапаны и все другие стандартные типы задвижек. Они изготовляются целиком из стали, со стальными корпусами и бронзовой арматурой, полу-стальные и медные.

ФИТИНГИ: Фирма JARECKI изготовляет фитинги с резьбой или на фланцах, из ковкого чугуна, литой стали, меди и бронзы.

Фирма JARECKI также строит станки для нарезки резьбы на трубах, регуляторы и разгрузители для паровых машин и компрессоров и всякого рода трубопроводное оборудование. Требуйте наш каталог.

La JARECKI es una de las fábricas más grandes del mundo de conexiones de tubería, válvulas y conexiones especiales. Fué fundada en 1852.

VALVULAS: El surtido Jarecki incluye válvulas esféricas, de compuerta de cuña, de compuerta de disco doble, de retención, de seguridad y de otros tipos normales. Entre los materiales empleados se comprenden el hierro, cuerpo de hierro y montaje de bronce, semiacero y latón.

CONEXIONES: El surtido Jarecki de conexiones comprende uniones de extremo roscado y con extremo de reborde, en todo tipo normal, de hierro maleable, de hierro fundido, de latón y de bronce.

La JARECKI fabrica también máquinas de roscar tubos, reguladores para motores de vapor y compresoras, descargardores para los mismos y toda clase de accesorios para tubería. Pídanos catálogo.

JARECKI est un des plus anciens et des plus importants fabricants de garnitures de tuyaux, soupapes et garnitures spéciales, ayant été établi en 1852.

SOUPAPES: La série Jarecki comprend des valves de types à globe, à vanne à cale, à vanne à double disque, d'arrêt, de sécurité, et tous autres types standard de valves. Les matériaux employés pour ces valves comprennent: tout-fer, corps en fer monté sur bronze, mi-acier et laiton.

GARNITURES: La série Jarecki de garnitures consiste de garnitures à bout fileté et à bout à bride de tous les types standard, prévues en fer malléable, fonte, laiton et bronze.

JARECKI fabrique aussi des machines à fileter les tuyaux, des régulateurs et des déchargeurs de machines à vapeur et compresseurs, et un équipement des plus variés de tuyauterie. Demandez-nous notre catalogue.

JARECKI MFG. CO.

General Offices: **ST. LOUIS, MO., U.S.A.**

FOR DRILLING EQUIPMENT

Now used as standard equipment by the major manufacturers of heavy duty oil field drilling equipment — no American Bearing application has ever been abandoned by any manufacturer in this industry.

The great success of AMERICAN BEARINGS has been due not only to their tremendous load-carrying capacity, but also to their simplicity of installation; and further, to the fact that they do not require adjustment. As a result of this last feature, the entire life is obtained from every bearing installed, as there is no possible way to install an AMERICAN except the right way. Important, also is the fact that installation can be made by a roughneck as well as by a skilled mechanic.

The steel of which these bearings are made has exceptionally uniform distribution of strength throughout and superability to resist wear. AMERICAN BEARING steel is made only in small quantities, in small electric furnaces, which are always subject to exact control. Inspections are most rigid and are thoroughly made. Tests are complete and exhaustive. If a shade away from prescribed strict and narrow limits, the steel is not used for American Bearings. Better steel in Roller Bearings is not known to the oil industry.

ПОДШИПНИКИ AMERICAN применяются в настоящее время большинством фабрикантов тяжелого оборудования, как стандартная часть их машин, причем еще никогда ни один фабрикант, начавший их устанавливать, не отказался от пользования ими.

Большой успех, достигнутый ПОДШИПНИКАМИ AMERICAN, об'ясняется не только их способностью выдерживать огромные нагрузки, но и простотой их установки, а также и тем, что они не требуют регулировки. В результате этого последнего достоинства, каждый установленный подшипник дает полный срок своей службы, так как подшипник AMERICAN нельзя установить иначе, как правильно. Также важен тот факт, что установка подшипника может быть также хорошо произведена обычным рабочим, как и опытным специалистом.

Сталь, из которой сделаны эти подшипники, отличается исключительной равномерностью структуры и чрезвычайной сопротивляемостью против износа. Сталь для ПОДШИПНИКОВ AMERICAN изготовляется только в малых количествах в небольших электрических печах, работ которых ведется под точным контролем. Всесторонняя инспекция поставлена чрезвычайно строго. Все испытания производятся полностью и исчерпывающе. Если спецификация стали отступает хотя-бы на волосок от точных и узких пределов, то она не применяется для изготовления подшипников AMERICAN. Нет стали лучше этой, которая применялась бы в нефтяной индустрии для шариковых подшипников.

Empleados actualmente como equipo normal por importantes fabricantes de maquinaria perforadora para campos petrolíferos, los cojinetes American han demostrado su excelente servicio en todas las aplicaciones a que se les ha sometido en la industria del petróleo.

El gran éxito de los COJINETES AMERICAN se ha debido no sólo a sus enormes capacidades de carga, sino también a la sencillez de su instalación y al hecho de que no exigen ajuste. Como resultado de esta última ventaja, se obtiene de cada cojinete su duración efectiva máxima, pues no hay manera alguna de instalar un cojinete AMERICAN que no sea la correcta. Importante es también el hecho de que la instalación puede hacerse por un operario sin experiencia tan bien como por un mecánico competente.

El acero de que se hacen estos cojinetes se caracteriza por una resistencia extraordinaria, uniformemente distribuída, de modo que presenta un obstáculo enorme al desgaste. El acero del COJINETE AMERICAN se hace en limitadas cantidades solamente, en pequeños hornos eléctricos, sujetos a continua inspección. Las inspecciones son numerosas y todas muy exactas, lo mismo que los varios ensayos a que se someten los cojinetes terminados. La más leve diferencia en especificaciones es suficiente para rechazar el acero ensayado. En realidad, no hay mejor acero de cojinete que el empleado en la construcción de los cojinetes de rodillos American. Es lo mejor de toda la industria petrolera.

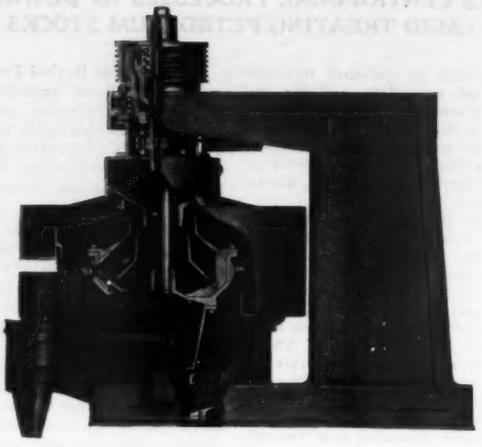
Maintenant employés comme équipement standard par la majorité des fabricants de matériel de forage de puits pétrolifères de service intensif—les paliers "American" n'ont jamais été abandonnés après avoir été adoptés par aucun fabricant de la branche.

Le grand succès des PALIERS AMERICAN est dû non seulement à leur énorme capacité de charge, mais aussi à la grande simplicité de leur installation; et encore au fait qu'ils ne demandent pas de réglage. Par suite de cette dernière caractéristique, on tire un maximum d'usage de chaque palier qu'on installe, car il n'est pas possible de faire l'installation d'un palier AMERICAN excepté de la manière convenable. Il est important aussi de noter que l'installation peut de ce fait être effectuée par un apprenti, tout aussi bien que par un mécanicien entraîné.

L'acier dont ces paliers sont faits a une résistance distribuée d'un bout à l'autre avec une régularité parfaite, et a une résistance exceptionnelle à l'usure. L'acier du PALIER AMERICAN n'est fabriqué qu'en petites quantités, dans de petits fours électriques, qui sont toujours sous une surveillance rigoureuse. Les inspections sont des plus rigides et faites de très près. Les essais sont complets et approfondis. Si les épreuves révèlent le plus léger écart des tolérances très serrées établies, l'acier n'est pas accepté pour les paliers American. On ne connaît pas dans l'industrie du pétrole de meilleur acier que celui de la marque American pour les coussinets à rouleaux.

AMERICAN ROLLER BEARING COMPANY

PITTSBURGH, PA., U.S.A.



MERCO CENTRIFUGAL DRILLING-FLUID DESANDER

The importance of centrifuging weighted rotary drilling-fluid to maintain initial mass and prolong useful life is being recognized by petroleum engineers.

Advantages are easier and safer drilling, as well as surprising reductions in costs. Merco-Centrifugal, the only available machine for the purpose, has proved its practicability in the service of many internationally known oil companies. Available figures show actual savings in excess of initial cost on a single well.

Among the savings are: less wear on drilling equipment, fewer twist-offs, sticking of the drill stem becomes less likely; cave-in and blow-out hazards are also minimized. Instead of discarding all drilling fluid in the well during drilling because of its light, diluted condition, it is run through the Merco-Centrifugal and brought back approximately to its initial weight per cu. ft. When drilling is completed, all of the mud can be readily reconditioned.

The Merco Centrifugal Company has recently appointed W-K-M Company, Inc., 74 Trinity Place, New York City, as foreign distributor. Complete information about the Merco-Centrifugal can be obtained from the W-K-M Company.

Инженеры-нефтяники признают важность пропуска взвешенного грязевого раствора через центрофуги, с целью восстановления его первоначальной плотности и удлинения срока службы.

В результате получается более легкое и безопасное бурение, а также удивительное понижение стоимости такового. Merco-Centrifugal является единственной машиной, предназначенной для этой цели. Практичность ее работы была доказана у многих интернационально известных нефтяных компаний. Действительные цифры показывают фактическую экономию, полученную при бурении отдельных скважин.

Фактические выгоды следующие: уменьшение износа бурового оборудования, уменьшение случаев срывов резьбы, заедание бурильной штанги становится менее вероятным, возможность осыпания стенок скважины и выбросов становится минимальной. Вместо того, чтобы выбрасывать весь грязевой раствор, поступающий из скважины во время бурения, так как он становится легким и неоднородным, его пропускают через Merco-Centrifugal, откуда он выходит с тем же примерно весом в куб. футе, какой он имел первоначально. Когда бурение закончено, то весь грязевой раствор может быть вновь восстановлен в своих первоначальных качествах.

The Merco Centrifugal Company назначила недавно фирму W-K-M Company, Inc., 74 Trinity Place, New York City своим заграничным представителем. Полные информации об аппаратах Merco-Centrifugal могут быть получены у W-K-M Company.

La importancia del fluído de perforación rotatoria contrapesado por acción centrífuga, para mantener la masa inicial y prologar la duración efectiva del equipo, ha sido aceptada por la industria del petróleo.

Las ventajas son mayor facilidad y seguridad en la perforación, además de sorprendentes reducciones en costo. La Merco-Centrifugal, la única máquina actual de su clase, ha demostrado su utilidad práctica al servicio de muchas firmas explotadoras de petróleo de fama internacional. Los datos a mano muestran ahorros en exceso al costo inicial de un solo pozo.

Entre estos ahorros se incluyen: menos desgaste del equipo de perforación, menos dobladuras, menor posibilidad de que se atasque el vástago del taladro o sonda; se reduce el peligro de hundimiento y explosión. En lugar de desperdiciar todo el fluído de perforación en el pozo, durante el trabajo, debido a su condición liviana o diluída, ese líquido se pasa por la Merco-Centrifugal y se acondiciona aproximadamente a su peso inicial por pié cúbico. Después de terminada la perforación, todo el barro puede acondicionarse de nuevo.

La Merco Centrifugal Company ha nombrado recientemente a la W-K-M Company, Inc., 74 Trinity Place, Nueva York, N. Y., como su distribuidora exclusiva para la exportación. De la W-K-M Company puede Ud. obtener información detallada sobre la Merco Centrifugal.

L'importance qu'il y a de centrifuger le fluide de forage rotatif lesté pour maintenir la masse initiale et prolonger la vie utile de ce fluide est reconnue par les ingénieurs pétroliers.

Les avantages qui en résultent sont un forage plus facile et plus sûr, ainsi que des réductions surprenantes des frais d'exploitation. Merco-Centrifugal, la seule machine offerte sur le marché dans ce but, a démontré son utilité pratique au service d'un grand nombre de compagnies pétrolières de renommée internationale. Les statistiques disponibles font ressortir des économies réelles dépassant le prix d'achat initial sur un seul puits déjà.

Parmi les économies ainsi réalisées, citons: une usure moindre de l'équipement de forage, moins de déviations, moindre chance que la tige de forage ne vienne à se coincer; réduction au minimum des risques d'éboulement et d'éclatement. Au lieu de rejeter tout le liquide de forage dans le puits au cours de l'opération du forage, à cause de son état de dilution et de légèreté, on le fait passer dans le Merco-Centrifugal, et on le ramène ainsi à environ son poids initial au pied cube. Lorsque le forage est terminé, il est facile de retraiter toutes les boues.

La Merco Centrifugal Company a récemment désigné la W-K-M Company, Inc., 74 Trinity Place, New York City, comme son distributeur de l'étranger. On peut obtenir la documentation complète sur le Merco-Centrifugal en écrivant à la W-K-M Company.

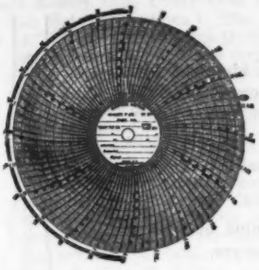
MERCO CENTRIFUGAL COMPANY

343 Sansome St., San Francisco, Calif., U.S.A.

Texas and Mid-Continent Distributors: W-K-M Company, Inc., Houston, Texas.

Foreign Distributors: W-K-M Company, Inc., 74 Trinity Place, New York City, N. Y.

ARCCO
RECORDING CHARTS



Our slogan since 1926 has been, "The World's Most Accurate Charts" and the adoption of Arcco Charts by operators around the world proves their merit.

We start with paper made to rigid specifications. Arcco Charts are then printed from original wax-engraved plates, never from duplicates. Printing and punching is done at the same time to insure perfect concentricity.

By giving you a low price based upon the total number of charts you use each year; and then delivering and collecting for them as you desire during the year, you make large savings.

Refer to Advertisers Index to find page where our advertisement appears.

Нашим девизом с 1926 года было: "Самые аккуратные бланки в мире", и широкое мировое применение бланков Arcco доказывает их высокое качество.

Мы начинаем с того, что бумага изготовляется по строгим спецификациям. После этого бланки Arcco печатаются с оригинальных восковых гравированных досок, но никогда не с дубликатов. Печатание и пробивка дыр производятся одновременно, что обеспечивает полную концентричность.

Мы можем дать Вам низкие цены, базируемые на общем количестве бланков, употребляемых Вами ежегодно, а затем втечение года доставлять Вам их и получать за них деньги в соответствии с Вашей потребностью и желанием. Это дает Вам большую экономию.

По оглавлению об'явителей Вы можете найти страницу этого журнала, на которой помещено наше об'явление.

Nuestro lema, desde 1926, ha sido "Los registros gráficos más exactos del mundo." La adopción de los registros gráficos Arcco por compañías explotadoras de petróleo, en todas partes del mundo, confirma su superioridad.

¿Empezando con el mismo papel manufacturado de acuerdo con las más exigentes espècificaciones, los registros gráficos Arcco se imprimen después de las placas de grabado en cera originales y nunca de placas duplicadas. La impresión y la perforación se hacen simultáneamente para asegurar perfecta concentricidad.

Dándole nosotros a Ud. un bajo precio basado sobre el número total de registros gráficos que Ud. usa al año, y luego entregándoselos a medida que los necesite y cobrándolos como Ud. quiera durante el año, Ud. ahorra, en realidad, mucho dinero.

En el índice de anunciantes vea el número de la página de nuestro annuncio en este número.

Notre devise est depuis 1926 la suivante: "Les graphiques les plus précis au monde," et l'adoption des graphiques Arcco par les exploitants de champs pétrolifères dans le monde entier en prouvent bien la supériorité.

Notre fabrication débute avec du papier préparé selon des spécifications rigoureuses. Les graphiques Arcco sont alors imprimés à partir de plaques originales, gravées à la cire, jamais à partir de reproductions. L'impression et le poinçonnage sont effectués en une seule opération afin d'assurer une parfaite concentricité.

En vous donnant un bas prix basé sur le nombre total de graphiques que vous employez par an, puis en faisant les livraisons et les recouvrements correspondants aux époques de votre choix pendant l'année, vous réaliserez des économies importantes.

Reportez-vous à l'Index des Annonceurs pour trouver la page où est présentée notre annonce.

AMERICAN
RECORDING CHART CO.
428 Boyd Street,
LOS ANGELES, CALIF., U.S.A.

McNEELY
VIBRATING MUD SCREEN

To obtain cleanest drilling fluid of uniform weight and consistency, operators the world over use the McNeely Vibrating Mud Screen manufactured by Vernon Tool Co., Ltd., Los Angeles, California.

Under favorable conditions, the McNeely Mud Screen has a capacity of approximately 700 gallons of drilling fluid per minute. The screen cloth often gives from 10 to 12 weeks continuous service, and the curved screen surface (an exclusive feature) assures rapid removal of waste cuttings. All-steel, unit type construction saves ground space; installation and removal are quick and easy. Write for Catalog.

Бурильные мастера по всему миру применяют вибрирующее сито McNeely, изготовляемое фирмой Vernon Tool Co., Los Angeles, California, с целью получить наиболее чистый грязевой раствор однородного веса и состава.

При благоприятных условиях сито McNeely имеет производительность примерно в 700 галлонов грязевого раствора в минуту. Материал сита часто выдерживает от 10 до 12 недель непрерывной работы, а вогнутая поверхность сита (что является большим достоинством), дает возможность быстрого удаления ненужных частиц. Все сито сделано из стали и по своей исключительной компактной конструкции занимает малую площадь пола. Установка и уборка производятся быстро и легко. Обращайтесь к нам за каталогом.

Para obtener el más limpio líquido de perforación de peso y consistencia uniforme, los petroleros en todas partes del mundo emplean la criba vibratoria de cieno McNeeley, fabricada por la Vernon Tool Co., Ltd., Los Angeles, California, E.U.A.

Bajo condiciones favorables, la criba de cieno McNeeley tiene una capacidad para cerca de 700 galones de líquido de perforación por minuto. La malla de tela a menudo da de 10 a 12 semanas de continuo servicio y la superficie curva de la malla o criba, que es un rasgo exclusivo, asegura la rápida salida de todos los desperdicios. La construcción enteriza completamente de acero ahorra espacio. La instalación y el desmontaje se hacen con facilidad y rapidez. Pídanos catálogo.

Afin d'obtenir le fluide de forage le plus épuré possible, et de densité et consistance uniformes, les exploiteurs pétroliers du monde entier emploient le tamis vibrateur à boues McNeely, fabriqué par la Vernon Tool Co., Ltd., Los Angeles, Californie.

Dans des conditions favorables, le tamis à boues McNeely a un débit d'environ 700 gallons de fluide de forage à la minute. La toile du tamis donne fréquemment de 12 à 12 semaines de service continu, et la surface courbe du tamis (une caractéristique exclusive) assure l'enlèvement rapide des rognures résiduaires. Sa construction tout acier, du type unitaire, économise de l'espace de terrain; l'installation et le démontage en sont faciles et rapides. Demandez-nous notre catalogue.

VERNON TOOL CO., Ltd.
2740 E. 37th Street,
Los Angeles, California, U.S.A.
Export:
THE NATIONAL SUPPLY CORP.
OIL WELL SUPPLY CO.

LESCHEN WIRE ROPE IS MAKING FRIENDS IN THE OIL FIELDS OF THE WORLD

Because it can always be depended upon, even under the most trying conditions, Leschen Wire Rope continues to make and hold friends all over the world.

Repeat orders are proof of this friendship.

Leschen steel wire rope is made from the highest quality acid open-hearth steel wire, and every wire is rigidly tested by us to make sure that it meets our exacting requirements for strength, toughness, flexibility and wearing qualities.

The world-wide reputation of Leschen Wire Rope is the definite result of 78 years' manufacturing experience. There is a correct type of Leschen Wire Rope for every purpose in the production of petroleum.

Complete descriptive literature and prices gladly furnished on request. See our advertisement in this issue.

Благодаря своей постоянной надежности даже при самых тяжелых условиях работы, стальные проволочные канаты Leschen все время продолжают завоевывать и сохранять клиентов по всему земному шару. Повторные заказы служат доказательством хорошего отношения клиентов к нам.

Стальные проволочные канаты Leschen изготовляются из Мартеновской стали самого высокого качества, причем каждая проволока тщательно испытывается нами с целью удостоверяться в том, что она в точности отвечает нашим точным спецификациям в смысле крепости, гибкости и износа.

Высокая мировая репутация стальных проволочных канатов Leschen является результатом 78-ми летнего опыта фирмы. Для любых нужд нефтяной индустрии имеется правильный тип стального проволочного каната Leschen.

Мы с удовольствием высылаем по требованию полную литературу с описанием канатов, а также цены на них. Наше об'явление помещено в этом номере журнала.

A causa de que siempre es digno de confianza, aún bajo las más difíciles condiciones imaginables, el cable metálico Leschen continúa haciéndose cada día de mayor clientela en todas partes del mundo. La repetición de pedidos es la mejor evidencia de la preferencia que goza.

El cable de acero Leschen se hace de la mejor clase de alambre de acero Siemens-Martin ácido. Cada alambre es prolijamente ensayado por nosotros, para asegurarnos de que satisface nuestros requisitos en materia de firmeza, dureza, flexibilidad y propiedades de duración.

La reputación internacional del cable metálico Leschen es el resultado acumulativo de 78 años de experiencia en su manufactura. Hay un tipo correcto de cable metálico Leschen para cada fin en la producción de petróleo.

A solicitud suministraremos información detallada y precios. Sírvase ver nuestro anuncio en este número.

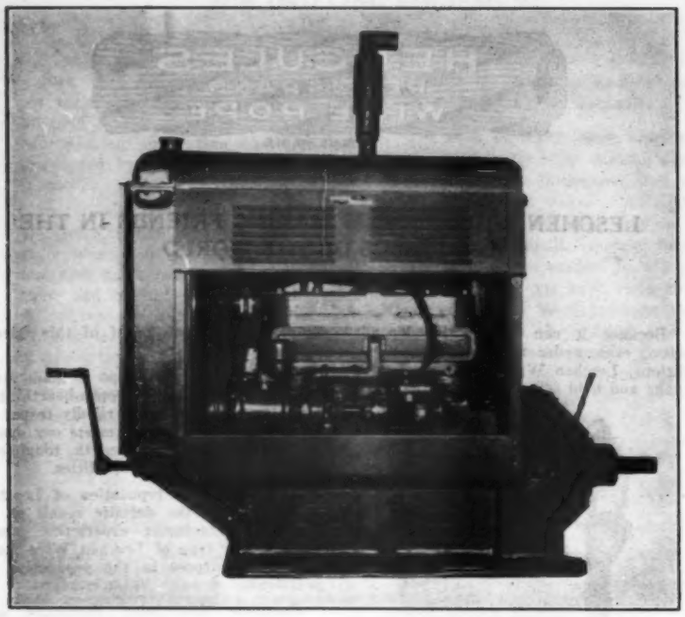
Parce qu'il ne connaît pas la moindre défaillance, même dans les conditions d'emplois les plus dures, le câble métallique Leschen fait sans cesse de nouveaux adeptes dans le monde entier. Le renouvellement des commandes est la preuve de sa popularité croissante.

Le câble d'acier Leschen est fait à partir de fils d'acier Siemens-Martin de qualité de choix, et chaque fil en est éprouvé rigoureusement par nous afin de s'assurer qu'il répond strictement aux spécifications requises comme force, résistance, souplesse et usage.

La renommée mondiale du câble Leschen est le fruit de 78 ans d'expérience dans la branche. Il est offert un type approprié de câble métallique Leschen pour chaque emploi dans la production du pétrole.

Sur demande, nous ferons un plaisir de fournir documentation complète avec prix. Voir notre annonce dans le présent numéro.

A. LESCHEN & SONS ROPE COMPANY
5909 Kennerly Avenue
ST. LOUIS, MISSOURI, U.S.A.
Export Distributor:
CONTINENTAL EMSCO COMPANY, Inc., 30 Rockefeller Plaza, New York City, U.S.A.
BUENOS AIRES LONDON PLOESTI



BUDA POWER FOR OIL FIELD SERVICE

For 25 years, The Buda Company has been one of the recognized leaders in engine manufacture. For the past 14 years, Buda has furnished power units for all branches of the Oil Industry in all United States fields. In recent years, Buda has gone into many foreign oil fields—Venezuela, Argentina, Mexico and others.

The Buda Company manufactures a complete line of Diesel, Gas, and Gasoline engines in sizes from 20 to 180 H.P. There is a Buda Engine of correct size and type for every Oil Field Power requirement — DRILLING, PUMPING, HOISTING, and portable and stationary equipment of all kinds. They can be furnished to meet any power problem, or any fuel condition. Buda oil field engines are designed especially for oil field service. They are backed by an engineering and advisory service based on first-hand knowledge of oil field practice.

Investigate Buda Engines for your oil field power requirements. See our full page advertisement in the Engineering and Operating Section.

Втечение 25 лет Buda Company считается одной из первенствующих фирм, строящих двигатели. Втечение последних 14-ти лет фирма Buda поставляла двигатели для всех нужд нефтяной индустрии и на все промысла Соединенных Штатов. За последние годы фирма Buda послала свои двигатели на заграничные нефтяные промысла: в Венецуелу, Аргентину, Мексико и другие.

Фирма Buda Company изготовляет всевозможные типы двигателей Дизель, Газовые и Газолиновые двигатели, мощностью от 20 до 180 лош. сил. Для любых нужд нефтяных промыслов — для БУРЕНИЯ, ОТКАЧКИ НЕФТИ И ПОДЪЕМНЫХ РАБОТ, — имеются двигатели Buda соответствующей мощности; кроме того, имеются переносные и стационарные установки всевозможных типов. Они отвечают всем разнообразным требованиям силовых установок и пригодны для топлива разнообразных типов. Двигатели Buda сконструированы специально для обслуживания нефтяных промыслов. Наши инженерные знания и советы основаны на глубоком практическом знании потребностей нефтяных промыслов.

Ознакомтесь с двигателями Buda для силовых установок на Ваших нефтяных промыслах. Обратите внимание на наше об'явление, занимающее целую страницу в инженерной и оперативной секции этого журнала.

Durante 25 años, la Buda Company ha sido una de las principales compañías dedicadas enteramente a la fabricación de motores. Desde hace 14 años, ella ha suministrado motores a todas las ramificaciones de la industria del petróleo en los Estados Unidos. Recientemente a vendido sus productos en importantes paises petroleros extranjeros, como Venezuela, Argentina, México y otros.

La Buda Company manufactura un surtido completo de motores diésel, de gas y de gasolina, en potencias de 20 a 180 c. de f. Hay un motor Buda de potencia y de tipo precjso para cada aplicación petrolera: PERFORACIÓN, EXTRACCIÓN A BOMBA, LEVANTAMIENTO, lo mismo que equipos fijos y portátiles de todo género. Se suministran de modo que se conforman a toda exigencia de fuerza y de combustible. Los motores Buda para la industria del petróleo están especialmente proyectados para el servicio petrolero. Son el resultado de un amplio conocimiento técnico basado sobre experiencia práctica en la explotación de pozos de petróleo.

Impóngase a fono de los motores Buda para todas las necesidades de fuerza en lo tocante a la explotación de petróleo. Vea nuestro anuncio en la sección técnica de esta revista.

Durant 25 ans, la Buda Company, a été une des principales compagnies entièrement dediées à la fabrication de moteurs. Depuis 14 ans, elle a fourni de moteurs à toutes les branches de l'industrie pétrolière dans les Etats Unis. Récémment elle a vendue ces produits en importantes pays pétroliers étrangers, comme Venezuela, Argentine, Mexico et autres.

La Buda Company manufacture une collection complète de moteurs diésel, à gas et à essence, en puissances allant de 20 à 180 c.v. Il y a un moteur Buda de puissance et type précis pour chaque application pétrolière: FORAGE, EXTRACTION A POMPE, LEVAGE, aussi que des equipements fixes et portatifs de tout genre. Ils sont fournis de manière à se conformer à n'importe quelle exigeance de puissance et de combustible. Les moteurs Buda pour l'industrie du pétrole sont spécialement étudiés pour le service pétrolier. Ils sont le rsultat d'une ample connaissance technique basée sur expérience pratique dans l'exploitation des puits de pétrole.

Faites des investigations sur les moteurs Buda pour tous les bésoins de puissance en matière d'exploitation pétrolière. Voyez notre annonce dans la section technique de cette revue.

THE BUDA COMPANY

Harvey (Chicago Suburb) Illinois

Division M F

OTIS PRESSURE CONTROL EQUIPMENT

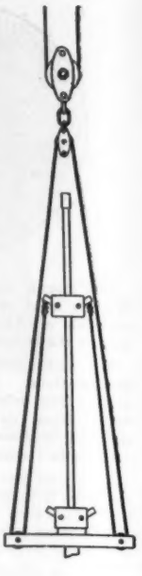
The equipment listed here is identical with that used by the many service crews of OTIS PRESSURE CONTROL, INC., in every important high pressure field in the United States and proven by them under virtually every well condition.

Snubbing equipment for running or pulling tubing and drill stem under pressure.

Removable bottom hole chokes and casing plugs for temporarily plugging tubing or casing, and for controlling flow from the bottom of the well.

Square grief stem drilling heads for drilling under pressure with the ordinary square grief stem and either flush joint or outside coupled drill stem.

Tubing closing tools for plugging tubing to be run under pressure.



Оборудование, перечисленное ниже, аналогично тому, которое применялось многими рабочими фирмы OTIS COMPANY, INC. на всех крупных нефтяных промыслах Соединенных Штатов, где существуют высокие давления. Они доказали на деле превосходство этого оборудования при всех существующих условиях работы. К изделиям фирмы относятся:

Оборудование для спуска или извлечения из скважины насосных труб и бурильной штанги при высоких давлениях в скважине.

Съемные пробки для насосных и обсадных труб. Они применяются для временной закупорки насосных или обсадных труб и для контролирования количества жидкости, поступающей со дна скважины.

Квадратные головки для бурильной штанги, применяющиеся для бурения при высоких давлениях либо обыкновенной квадратной бурильной штангой, либо бурильной штангой, свинчивающейся за подлицо или имеющей выступающую соединительную муфту.

Инструменты для закупорки насосных труб при спуске или извлечении их под давлением.

El equipo aquí mostrado es igual al empleado por las muchas cuadrillas de servicio de la OTIS COMPANY, INC., que trabajan en los principales campos de alta presión en los Estados Unidos, donde han demostrado su utilidad bajo toda condición de explotación de pozo petrolífero.

Equipo de sujeción para bajar y subir tubería y vástago de sondas bajo presión.

Obturadores amovibles de fondo de agujero y tapones de revestimiento para tapar provisionalmente la tubería o el revestimiento y para gobernar la circulación al fondo del pozo.

Cabezas de perforación de vástago rectangular, para perforación bajo presión con vástago rectangular ordinario y con vástago de taladro de unión directa o de acoplamiento exterior.

Herramientas para cerrar tubería, para tapar la tubería por trabajarse bajo presión.

Le matériel énuméré ici est identique à celui employé par les nombreuses équipes de service de la OTIS COMPANY, INC., sur tous les chantiers à hautes pressions des Etats-Unis, matériel qui a, entre leurs mains, fait ses preuves dans pour ainsi dire toutes les conditions d'exploitation de puits pétrolifères.

Matériel amortisseur pour introduire ou extraire le tubage et la tige de forage sous pression.

Prises d'air amovibles de trous de fond et tampons de revêtements de puits pour boucher provisoirement le tubage ou le revêtement, ainsi que pour contrôler le jaillissement au fond du puits.

Mécanismes de forage à tige de secours d'équerre pour forage sous pression au moyen de la tige de secours d'équerre ordinaire, et la tige de forage soit à joint à niveau ou à accouplement extérieur.

Outils à boucher le tubage pour tamponner le tubage destiné à être employé sous pression.

OTIS PRESSURE CONTROL, Inc.

(Formerly Southern States Co.)

Tower Petroleum Building **DALLAS, TEXAS, U.S.A.**

ELLIOTT CORE DRILLS

Elliott Rotary Core Drill: (For Both Hard and Soft Formations.) The new Model "A" Elliott Rotary Core Drill embodies all the features which are responsible for the outstanding performance of previous models in all parts of the world; and which our many years of experience, both in the manufacture of core drilling equipment and in the operation of a core drilling service, have proved to be essential to efficient operation and dependable recovery of satisfactory cores. The improvements which have been made in various models from year to year have resulted from intensive specialization in this one branch of oil well drilling service, and have been adopted as standard equipment only after the most careful and exacting procedure in actual service over long periods of time.

The most recent addition to our rotary core drills is a hard formation cutter head which has been thoroughly proved in actual service for more than a year. This new cutter head is illustrated and described in this issue of The Oil and Gas Journal.

The entire assembly of the Elliott Rotary Core Drill is very rugged and extremely simple. There are no "gadgets" to mud-up or fail under severe service. The tool is easy to assemble and dissemble, as well as to operate with every assurance of satisfactory recoveries. It is built for long life, and so designed that when repairs are necessary they can be made expeditiously in any ordinary field shop. The adequate circulation space between barrels and through ports will be appreciated, particularly by those operators using large pumps and heavy mud.

Elliott Cable Tool Core Drills: For years the standard of operating efficiency and core recovery. Many drillers use this tool to drill and core continuously, as it cuts as rapidly as a drilling bit. Successfully cores formations from soft, sticky shale to very hard conglomerate. Supplied in sizes for cutting hole from 3¾" to 12", recovering cores from 1¼" to 3". Descriptive bulletins of either type supplied on request.

Грунтоноски ELLIOT изготовляются двух разных типов, а именно: для работы при вращательном бурении, и для работы при канатном бурении. В их конструкцию вложен более чем двенадцатилетний опыт инженеров, металлургов и промысловых экспертов, основанный на непосредственном ведении работ грунтоносками и на изучении заводских процессов их производства.

ГРУНТОНОСКА ELLIOT МОДЕЛЬ 34 ДЛЯ ВРАЩАТЕЛЬНОГО БУРЕНИЯ. Как в смысле работы ею, так в смысле получения колонок грунтов, новая модель 34 чрезвычайно усовершенствована. Она дает колонку большего диаметра и при этом срезывает меньше грунта. Рабочие части ее лучше отбалансированы. Усовершенствованная с'емная режущая головка дает лучшую и более быструю проходку, чем прежняя. Когда с'емная головка затупится, то она может быть легко снята и заправлена с минимальными затратами, либо заменена новой, если она окончательно сработалась. Задерживатели грунта изготовляются двух типов: для обычных и для твердых грунтов. Как корпуса резцов, так и переводники подвергаются термической обработке в автоматически контролируемых печах новейшего типа. Режущие головки наварены Tungstite'ом (твердый сплав) и после этого термически обработаны для уничтожения напряжений, возникших при наварке. Эти грунтоноски изготовляются разных диаметров для прохождения скважин от 3⅞" до 27". Требуйте бюллетень № 34-B.

ГРУНТОНОСКА ELLIOT ДЛЯ КАНАТНОГО БУРЕНИЯ. Эта грунтоноска втечение многих лет считается на нефтяных промыслах всего мира наиболее совершенной как в смысле продуктивности своей работы, так и по качеству получаемых образцов грунта. Многие буровые мастера при канатном бурении применяют ее как для бурения, так и для извлечения образцов грунта, так как бурение ею идет так же быстро, как и обыкновенным долотом. Эта грунтоноска с успехом работает в разных грунтах, начиная от мягких грунтов, вязких глин и до очень твердых конгламератов. Она отличается совершенством своей конструкции, чрезвычайной точностью изготовления и работает совершенно безопасно. Грунтоноска изготовляется разных размеров для бурения скважин диаметром от 3⅞" до 12" и для колонок диаметром от 1¼" до 3". Требуйте наш бюллетень № 34-C.

Las barrenas Elliott para sacar muestras, se fabrican en dos tipos distintos, para uso con equipo de perforación rotatoria y herramienta de cable. Representan la combinación de experiencia en ingeniería, metalurgia y trabajo práctico, obtenida durante un periodo de más de doce años de supervigilancia directa sobre la extracción de muestras con barrenas y procedimientos de fabricación de barrenas para sacar muestras.

BARRENA ELLIOTT PARA SACAR MUESTRAS, MODELO 34 PARA PERFORACION ROTATORIA: En funcionamiento y en recuperación de muestras, el nuevo modelo 34 es una herramienta notablemente perfeccionada. Corta más muestra, pero menos formación. Los factores de seguridad están mejor equilibrados. La perfeccionada cabeza cortante de tipo amovible está obteniendo muestras mejores y con mayor rapidez. El rasgo amovible permite la rehabilitación a un costo mínimo, cuando la herramienta necesita filadura, y un reemplazo económico cuando se desgasta hasta quedar inutilizada por completo. Hay dos tipos de recogedores de muestras, para formaciones corrientes y para formaciones muy duras. Los cuerpos y accesorios de las herramientas cortantes se someten a tratamiento térmico en modernos hornos de regulación automática. Las cabezas de los cortadores llevan revestimiento de Tungstite y a continuación se les somete a tratamiento térmico para librarlas de las tensiones inducidas por la soldadura. Se suministran en varios tamaños, para agujeros de corte de 3¾" a 27". Pídanos nuestro boletín No. 34-R.

BARRENA ELLIOTT PARA SACAR MUESTRAS, PARA PERFORACION CON CABLE: Durante años, este tipo ha sido la norma de funcionamiento y rendimiento efectivo en los campos petrolíferos de todas partes del mundo. Muchos perforadores con equipos de cable emplean esta herramienta para perforar y sacar muestras continuamente, pues corta con tanta rapidez como un taladro corriente. Con mucho éxito ha sacado muestras de formaciones que varían de esquistos blandos y pegajosos a conglomerados muy duros y tenaces. Correcta en proyecto y de construcción precisa en extremo, esta barrena es absolutamente segura para el trabajo. Se suministra en tamaños para cortar agujeros de 3¾" a 12", produciendo muestras de 1¼" a 3". Pídanos nuestro Boletín No. 34-C.

Les trépans de carottage Elliott sont livrés en deux genres, pour forage rotatif et à percussion. Ils sont le résultat de l'expérience technique, métallurgique et pratique acquise au course de 12 années de spécialisation dans l'emploi et la fabrication d'outils de forage.

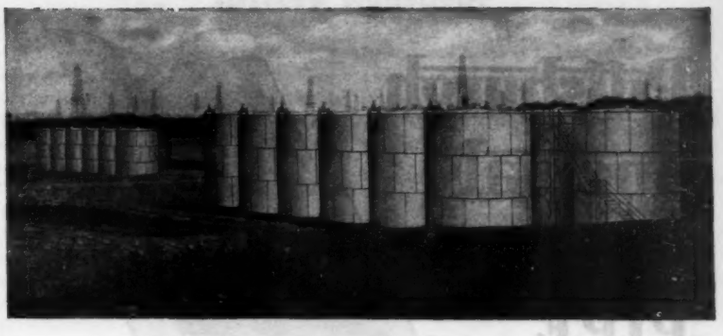
TREPAN DE CAROTTAGE ELLIOTT MODELE 34: Cet outil est des plus modernes en ce qui concerne le forage et la récupération de la carotte. Il taille de plus grosses carottes mais moins de formation. Parfaitement équilibré, le porte-lame amovible facilitant l'ouvrage permet de remplacer la lame quand elle est émoussée et l'outil tout entier quand il est usé. Livré avec deux différents grapins, pour sols moyens et durs. Corps et tige traités dans des fours automatiques. Porte-lames revêtus de Tungstite et traités pour supprimer les tensions produites par la soudure autogène. En différentes dimensions pour puits de 3⅞ à 27 opuces. Demander le prospectus No. 34-R.

TREPAN DE CAROTTAGE ELLIOTT A PERCUSSION: Adopté depuis de longues années dans tous les gisements pétrolifères du monde entier. Souvent utilisé pour le forage et le carottage continus, du fait de sa rapidité de fonçage. Efficace aussi bien dans les dans les terrains schisteux que dans les conglomérés les plus durs. Parfaitement étudié, extrêmement précis et absolument sûr. Livré en dimensions pour puits de 3¾ à 12 pouces, récupérant des carottes de 1¼ à 3 pouces. Demander le prospectus No. 34-C.

ELLIOTT CORE DRILLING COMPANY

4731 East 52nd. Drive. **Los Angeles, California, U.S.A.**

Export Office: **525 Graybar Bldg., New York City.**



COLUMBIAN BOLTED TANKS

The Columbian Steel Tank Company has for many years been the largest fabricator in the world of bolted steel tanks for the oil industry. This leadership is due to the superiority of Columbian tanks and the Columbian policy of guaranteed customer satisfaction.

Precision built of selected copper bearing steel, every section is formed, flanged and punched on enormous precision machinery so that they fit perfectly, enabling them to be assembled by unskilled labor.

Bolted tanks are especially recommended for installations where equipment is not available for fabricating riveted or welded tanks. Columbian bolted tanks are serving the frontiers of civilization the world over.

Columbian tanks are adaptable to the storage of dry commodities or are liquid and vapor tight containers.

Columbian has shipped to almost every country in the world. Years of experience assure the efficient handling of every export order.

Втечение многих лет фирма Columbian Steel Tank Company является самым крупным фабрикантом в мире, изготовляющим стальные, собираемые на болтах, резервуары для нефтяной индустрии. Это первенствующее положение об'ясняется преимуществами резервуаров Columbian и политикой фирмы Columbian, обеспечивающей удовлетворительное обслуживание клиентов.

Тщательно изготовленная из отборной стали с содержанием меди, каждая секция резервуара прокатывается, снабжается фланцами и дырами на огромных и точных станках, что обеспечивает плотность прилегания отдельных частей и облегчает сборку, которая может быть произведена неквалифицированными рабочими.

Резервуары, собираемые на болтах особенно рекомендуются для установки в таких местах, где нет оборудования для клепки или сварки резервуаров. Сболченные резервуары Columbian применяются цивилизованными странами всего мира.

Резервуары Columbian пригодны для хранения сухих продуктов или применяются как герметические резервуары для хранения жидкости и паров.

Фирма Columbian отправляла свои резервуары почти во все страны мира. Многолетний опыт обеспечивает правильное выполнение любого экспортного заказа.

La Columbian Steel Tank Company, desde hace muchos años, ha sido la fábrica más grande del mundo de tanques o depósitos de acero empernados, para la industria del petróleo. Esta supremacía se debe a la superioridad de los tanques Columbian y al método de la compañía Columbian de garantizar la satisfacción de su clientela.

Hecha de acero cúprico de fina calidad, cada sección del tanque se forma, recibe reborde y se perfora con punzón en grandes máquinas de precisión. Por esta razón, las secciones ajustan perfectamente, lo que facilita grandemente su montaje e instalación obreros sin experiencia.

Los tanques empernados se recomiendan especialmente para instalaciones donde no hay equipo local para la construcción de tanques remachados o soldados. Los tanques empernados Columbian están sirviendo en las más lejanas fronteras de la civilización, en todas partes del mundo.

Los tanques Columbian se adaptan al almacenaje de productos secos y sirven también como receptáculos de líquidos y de gases perfectamente herméticos.

La compañía Columbian ha vendido estos tanques a casi todo país del mundo. Años de experiencia práctica en el negocio con el extranjero aseguran manejo correcto de todo pedido de exportación.

La Columbian Steel Tank Company est depuis de nombreuses années le plus important fabricant du monde de réservoirs boulonnés en acier pour l'industrie du pétrole. Cette place éminente est due à la supériorité des réservoirs Columbian et à ce que Columbian n'a jamais cessé de viser la satisfaction absolue du client.

Construite avec la plus grande précision à partir d'acier cuprifére de choix, chaque section est façonnée, nervurée et poinçonnée sur d'énormes machines de préci sion, ce que fait qu'elles s'ajustent parfaitement et que l'assemblage peut en être fait par de la main-d'oeuvre non spécialisée.

Les réservoirs boulonnés sont tout particulièrement recommandés dans le cas d'installations où l'on ne dispose pas de l'outillage nécessaire pour fabriquer des réservoirs soudés ou rivés. Les réservoirs boulonnés Columbian sont au service de la civilisation dans le monde entier.

Les réservoirs Columbian peuvent être employés à l'emmagasinement de denrées sèches, ou servir de récipients étanches pour liquides ou vapeurs.

Columbian a fait des expéditions dans presque tous les pays du monde. Des années d'expérience garantissent au client une exécution empeccable de toute commande d'exportation.

Complete literature will be sent on request without obligation.

COLUMBIAN STEEL TANK CO.

KANSAS CITY, MISSOURI, U.S.A.

Cable Address: **COLUMBIAN, KANSAS CITY.**

Pittsburgh Special DRILL PIPE

PITTSBURGH SPECIAL DRILL PIPE

This rotary drill pipe is made in the regular grades and sizes of regular A.P.I. drill pipe. In addition to its regular A.P.I. features (and interchangeability) it has a slight exterior upset beyond the threaded area. This tapered and machined "land" area, when properly made up with tool joints to correspond seals the joint against abrasive sands, permits further tightening of the threads under torsional stress and affords at least 30 per cent greater contact surface that prevents rocking in threads, the most common cause of breakoffs. It is proving its superior strength and safety in severe deep well drilling.

We manufacture also regular grades and sizes of A.P.I. drill pipe, casing and oil well tubing, also accurately made tubing for Hughes Plunger Lift installations. Data gladly furnished upon request.

Эти бурильные трубы изготовляются в соответствии с нормами и размерами, установленными А.P.I. (Американским Нефтяным Институтом) на бурильные трубы. В дополнение к стандартным достоинствам нормы A.P.I. (и взаимозаменяемости) они имеют еще небольшую наружную высадку, расположенную выше резьбы. Скошенная и обработанная кольцевая поверхность концов труб, при правильной навертке на соответствующие соединительные замки, создает плотное соединение, не подвергающееся истиранию песками, также дает возможность дальнейшей подвертки соединений и создает по меньшей мере на 30% больший контакт поверхностей соприкосновения что предупреждает начание соединений, являющееся обычной причиной срыва резьбы. Эти трубы неоднократно доказали свою исключительную прочность и надежность при бурении многих глубоких скважин.

Мы также изготовляем бурильные, обсадные и насосные трубы по нормам и размерам A.P.I. и тщательно выполненные насосные трубы для плунжерных насосных установок Hughes. Данные высылаются по требованию.

Este tubo de perforación rotativa se ofrece en los mismos tamaños y clases que el tubo de perforación normal de patrón A.P.I. Además de sus características A.P.I. y calidad de intercambiable tiene un leve acortamiento más allá de la sección roscada. Esta sección de soporte ahusada y labrada a máquina, al conectarse bien con correspondientes uniones, cierre la conexión protegiéndola contra la arena raspante, permitiendo también un mayor aprieto a las roscas bajo la tensión torsional. Permite, por lo menos, 30% más contacto superficial, lo que evita la vibración en la rosca, que es la causa más común de las roturas. Este tubo está demostrando su insuperable firmeza y seguridad en las más difíciles perforaciones de pozos profundos.

Fabricamos también clases y tamaños normales de tubos de perforación, revestimientos y tubería de pozo petrolífero, de acuerdo con los patroles de la A.P.I. Entre nuestros productos se incluye tubería especial para instalaciones por el procedimiento de Hughes. Información completa a solicitud.

Ce tuyau de forage rotatif est fabriqué dans les qualités et grandeurs habituelles du tuyau de forage A.P.I. courant. En plus de ses caractéristiques A.P.I. régulières (et son interchangeabilité), il présente un léger renflement extérieur au-delà de la partie filetée. Cette section dite de terrain, ovalisée et usinée, ne manque pas, quand elle est bien exécutée avec les joint d'outil correspondant, de former un joint étanche contre les sables abrasifs, de permettre un serrage plus grand du filetage sous l'effort de torsion, et d'assurer au moins 30 pour cent de plus de surface de contact, ce qui empêche le basculement dans les filets, la cause la plus fréquente des ruptures. Sa résistance supérieure et son fonctionnement irréprochable ont été démontrés en forage dur en puits profonds.

Nous fabriquons aussi les qualités et grandeurs courantes de tuyau de forage, revêtements et tubage de puits à pétrole A.P.I., ainsi que du tubage de haute précision pour les installations à soulèvement de plongeur Hughes. Sur demande, nous sommes heureux de fournir toutes données utiles.

PITTSBURGH STEEL COMPANY
PITTSBURGH, PA. NEW YORK, N. Y., U.S.A.
Export Representatives: Lucey Export Corporation, New York, N. Y., U.S.A.

Seismograph Service Corporation, with its subsidiary, Engineering Laboratories, Inc., of Tulsa, offers complete seismic service to carry out any exploration program. It has men available trained through wide experience in seismic problems in the United States and foreign fields.

All equipment for field use is manufactured in Tulsa, where there are extensive research and experimental laboratories needed to maintain the company's high record for accuracy.

The Bird Antarctic Expedition used seismic instruments furnished by Seismograph Service Corporation in its research at the South Pole.

Фирма Seismograph Service Corporation и субсидиарная ей фирма Engineering Laboratories, Inc. of Tulsa, предлагают свои услуги по полным сейсмографическим обследованиям для производства любых изыскательных работ. Они имеют персонал, обладающий широким опытом по разрешению сейсмографических проблем на промыслах Соединенных Штатов и за-границей.

Все оборудование для полевых работ изготовляется в гор. Tulsa, где имеются обширные исследовательные и экспериментальные лаборатории, необходимые для соблюдения той чрезвычайной аккуратности, которой отличается наша фирма.

Полярная экспедиция Bird'a при исследовании Южного Полюса применяла сейсмографические инструменты, поставленные фирмой Seismograph Service Corporation.

La Seismograph Service Corporation, con su subsidiaria, la Engineering Laboratories, Inc., ofrece un completo servicio sismográfico, en conexión con cualquier proyecto de exploración. Tiene un personal de vasta experiencia práctica basada en el estudio y solución de problemas sismográficos en los Estados Unidos y muchos paises del extranjero.

Todo el equipo de campo se fabrica en Tulsa, donde hay grandes laboratorios técnicos y de investigaciones prácticas experimentales al servicio de nuestra organización, que sirven de protección a la exactitud de su trabajo.

La Expedición Antártica de Byrd se sirvió de instrumentos sísmicos, suministrados por la Seismograph Service Corporation, para sus investigaciones en el polo sur.

La Seismograph Service Corporation, avec sa filiale, la Engineering Laboratories, Inc., de Tulsa, offrent un service sismique complet permettant d'exécuter tout programme de prospection. Il offre les services d'ingénieurs qui ont acquis une vaste expérience des problèmes sismiques tant aux Etats-Unis que sur les champs pétrolifères de l'étranger.

Tout le matériel employé sur les chantiers pétroliers se fabrique à Tulsa, où l'on trouve des laboratoires superbement outillés pour des recherches approfondies permettant à la compagnie de maintenir son record élevé de précision.

L'Expédition Antartique de Bird a précisément fait usage des instruments sismiques fournis par la Seismograph Service Corporation, pour faire des expériences au Pôle Sud.

SEISMOGRAPH SERVICE CORP.
Kennedy Building
TULSA, OKLAHOMA, U.S.A.

PRODUCTS THAT CUT DOWN UNDERGROUND OVERHEAD

Hough Products are made in a modernly equipped plant by experienced mechanics from highest quality materials that are best suited to the requirements of varying services for which they are recommended. Many Producers find that the Hough line is better than ever because it cuts lifting costs more and more each year. The line is complete, including such representative items as Huf-Duo Insert Pumps—Huf-Stripper Insert Pumps—Huf-Lewis Insert Plunger Pumps — Specialized Balls and Seats—Working Barrels and Working Barrel Valves.

Special bulletins are available on all Hough Products.

Изделия Hough изготовляются на заводе, оборудованном по последнему слову техники. На этом заводе работают опытные механики, причем для изготовления изделий применяются материалы самого высокого качества, наиболее подходящие для разнообразных условий работ, для которых они предназначаются. Многие нефтепромышленники убедились в том, что изделия Hough все время улучшаются по своим качествам, так как в результате их применения из года в год получается все большая и большая экономия в ежегодных эксплоатационных расходах. Фирма изготовляет разнообразное оборудование, включающее следующие машины: Насосы Huf-Duo со вставными втулками; Насосы Huf-Stripper со вставными втулками; Плунжерные насосы Huf-Lewis со вставными втулками; Специальные шарики и седла; Глубокие насосы и клапаны для глубоких насосов.

Специальные бюллетени изделий Hough высылаются по требованию.

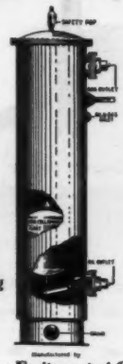
Los productos Hough se fabrican en un establecimiento montado a la moderna. Se hacen de material de la más fina calidad por obreros de vasta experiencia. Responden a todas las aplicaciones para las cuales se recomiendan. Muchos productores de petróleo están convencidos de la superioridad de los productos Hough en vista de las crecientes economías en gastos que derivan de su empleo todos los años. Entre los productos Hough se hallan las bombas Huf-Duo Insert, las bombas Huf-Stripper Insert, las bombas Huf-Lewis Insert de émbolo, cilindros y válvulas para cilindros.

Pídanos nuestro catálogo.

Les produits Hough sont fabriqués dans un établissement monté à la moderne. Ils sont faits du matériel de la plus haute qualité, par des ouvriers de vaste expérience. Ils répondent à toutes les applications pour lesquelles ils sont récommendés. Beaucoup de producteurs de pétrole son convaincus de la supériorité des produits Hough, en vue des croissantes économies en frais d'exploitation qu'ils en derivent tous les ans. Parmi les produits Hough on y trouve les pompes Huf-Duo Insert, les pompes Huf-Stripper Insert, les pompes Huf-Lewis Insert à piston. des cylindres et soupapes pour cylindres.

THE CHARLES N. HOUGH MFG. COMPANY
FRANKLIN, PA., U.S.A.

Duro Gas and Oil Separator



Duro Engineering Co.

Duro manufactures an inexpensive but highly efficient gas and oil separator especially designed for use on wells producing up to 1,000 bbls. of oil and 2,000,000 cu. ft. of gas per day. Its automatic gas valve effectively prevents any oil from getting in the gas line. The design of the removable oil valve insures long life and satisfactory operation with a minimum of friction. Any sand or heavy deposit can be readily removed with a hooked type scraper. Price, $300.00 F.O.B. Brea, California, U.S.A.; substantial discounts on quantity orders.

Фирма Duro изготовляет недорогой, но чрезвычайно продуктивный сепаратор для газа и нефти, сконструированный специально для применения на скважинах, дающих до 1000 баррелей нефти и до 2.000.000 куб. фут. газа в сутки. Автоматический клапан для газа не позволяет нефти проникнуть в газовую линию. Конструкция с'емного клапана для нефти обеспечивает его долгосрочную и удовлетворительную службу при минимальном трении. Весь песок и тяжелые осадки легко и быстро удаляются крючкообразным скрейпером. Цена $300.00 ф.о.б. Brea, California; при большом заказе дается значительная скидка.

La Duro fabrica un separador de gas y aceite o petróleo económico y notablemente eficaz, que ha sido proyectado especialmente para emplearse en pozos que producen hasta 1.000 barriles de petróleo y 2.000.000 de pies cúbicos de gas por día. Su válvula automática de gas evita efectivamente la entrada de petróleo a la tubería del gas. La construcción de la válvula de petróleo amovible asegura prolongada duración y satisfactorio funcionamiento con un mínimo de fricción o rozamiento. La arena y cualquier otro sedimento espeso puede extraerse con facilidad con un raspador de tipo de gancho. Precio, $300.00 F.O.B. Brea, California, E.U.A. Se concede un buen descuento sobre pedidos de varios separadores.

Duro fabrique un séparateur de pétrole et de gaz bon marché, mais de grande efficacité, prévu pour emploi sur les puits produisant jusqu'à 1.000 barils de pétrole et 2.000 pieds cubes de gaz par jour. Sa soupape automatique à gaz empêche efficacement tout pétrole de pénétrer dans la canalisation à gaz. Le tracé de la soupape à pétrole démontable lui assure un long usage en service et un fonctionnement satisfaisant avec un minimum de frottement. Tout dépôt de sable ou autre boue lourde peut facilement s'enlever au moyen d'un râcleur du type courbé. Prix, $300.00 F.O.B. Brea, Californie, U.S.A.—remises importantes sur commandes de quantités.

DURO ENGINEERING CO.
BREA, CALIFORNIA, U.S.A.

NEW AIR-OPERATED DIAPHRAGM CONTROL VALVE ADDED TO MASON-NEILAN LINE

New Mason-Neilan Air-Operated Diaphragm Control Valve.

Mason-Neilan Regulator Company, manufacturers of pressure, temperature and flow control equipment, have just announced a new all steel air-operated diaphragm control valve that definitely prevents coking, sticking and shut-downs in the middle of the run.

Coke is removed by the occasional operation of a simple hand lever. Air-cooled intermediates insure smoother action and prevent fires on lines that are really hot. And if the external operating pressure fails, the valve is quickly converted into a hand-throttling valve—assures operation throughout the run. Streamlined body, ports and valve plug produce streamline flow and increased valve life.

Фирма Mason-Neilan Regulator Company, изготовляющая оборудование для контроля давлений, температур и количеств протекающей жидкости, только что выпустила на рынок диафрагмовую контрольную задвижку, работающую сжатым воздухом и сделанную целиком из стали. Эта задвижка совершенно устраняет скопление угля в трубах, засорение труб и остановки во время процесса работы.

Уголь удаляется время от времени при помощи несложного ручного рычага. Воздушное охлаждение обеспечивает плавность работы и предохраняет горячие секции труб от пожара. В том случае, если наружное рабочее давление падает, задвижка может быть быстро переведена на управление от руки, что обеспечивает непрерывность работы за все время процесса. Плавность линий корпуса, проходных каналов и затвора, создают плавную струю, что увеличивает срок службы задвижки.

La Mason-Neilan Regulator Company, fabricante de equipos para la regulación de presión, temperatura y flujo, acaba de anunciar una válvula enteramente de acero, de tipo de diafragma de funcionamiento por aire, que evita positivamente la conversión en coque, la adhesión y la paralización en la mitad del trabajo.

El coque se extrae accionando, de vez en cuando, una sencilla palanca manual. Los intermediarios enfriados por aire aseguran acción expedita y evitan incendios en los conductos o líneas que están verdaderamente recalentados. Y si llegara a fallar la presión de trabajo exterior, la válvula se convierte en seguida en una válvula reguladora o de estrangulación, asegurando un funcionamiento continuo. La forma perfilada del cuerpo, orificios y tapón de la válvula produce un flujo o corriente seguido y fácil, que propende a la mayor duración del equipo.

La Mason-Neilan Regulator Company, fabricant d'équipement de contrôle des pressions, des températures et de l'écouiement, vient d'annoncer la mise sur le marché d'une nouvelle soupape de contrôle tout acier à diaphragme à commande d'air, qui empêche positivement toute cokéfaction, coinçage et panne au cours d'un cycle d'opération.

On élimine le coke en faisant fonctionner périodiquement un simple levier à main. Des or-anes intermédiaires refroidis par l'air assurent une marche douce et préviennent les incendies sur les conduites particulièrement chaudes. Et si la pression externe de travail vient à flancher, la soupape est convertie instantanément en un papillon-valve à main—ce qui assure la marche jusqu'au bout du cycle. Le profilage du corps, des orifices et du bouchon de cette soupape lui assurent un écoulement soutenu et un plus long usage en service.

MASON-NEILAN REGULATOR COMPANY
1193 Adams Street
BOSTON, MASS., U.S.A.

SHAFFER EQUIPMENT

Shaffer Tool Works manufactures a complete line of High Pressure Drilling Equipment and can provide hook-ups for the drilling and production of oil or gas wells for any pressure that may be encountered. SHAFFER CELLAR CONTROL GATES insure maximum safety in drilling high pressure wells and provide means to close wells against blowouts when pipe is either in or out of the hole, and will positively hold against the highest well pressures known. SHAFFER SPOOL TYPE LANDING HEADS provide means of landing and packing off individual strings of casing with maximum safety and minimum cellar space. Their use greatly simplifies and speeds the landing of pipe. They have supported the longest and heaviest strings of casing and have been used on wells where the highest pressures in modern drilling have been encountered. SHAFFER ADJUSTABLE FLOW BEANS control of the flow of fluid and regulate the pressure and rate of flow to the closest degree possible. SHAFFER CASING AND TUBING HEADS are manufactured in a wide variety of types for exacting conditions and excel in performance under high pressures. SHAFFER FISHING TOOLS have been in general use in domestic and foreign fields for many years and are regarded as the most efficient and dependable tools on the market. See the 1936 Composite Catalog or write for our new Catalog.

Фирма SHAFFER TOOL WORKS изготовляет полный набор Бурильной Арматуры для высоких давлений и может дать полную установку для бурящихся или эксплоатируемых скважин, пригодную для любых давлений, какие только могут встретиться. КОНТРОЛЬНАЯ ЗАДВИЖКА SHAFFER для установки под полом буровой вышки обеспечивает максимальную безопасность бурения при высоких давлениях и дает возможность прикрывать скважину в случае выбросов, независимо от того, находятся-ли в ней бурильные трубы, или они извлечены. Эти задвижки надежно выдерживают самые высокие давления, какие только существуют в скважине. СПУСКНЫЕ ГОЛОВКИ SHAFFER КАТУШЕЧНОГО ТИПА служат для спуска и укладки индивидуальных колони обсадных труб с максимальной безопасностью и с минимальным заполнением подвального помещения вышки. Их применение сильно упрощает и ускоряет укладку труб. Они выдерживали самые длинные и самые тяжелые колонны обсадных труб и применялись в скважинах, имеющих наиболее высокие давления, какие только встречаются при современном бурении. РЕГУЛИРУЕМЫЕ ПРИСПОСОБЛЕНИЯ SHAFFER ДЛЯ ЖИДКОСТИ контролируют струю жидкости и регулируют давление и количество жидкости с такой точностью, как только может быть достигнута. ГОЛОВКИ SHAFFER ДЛЯ ОВСАДНЫХ И НАСОСНЫХ ТРУБ изготовляются с большим разнообразием типов, с тем, чтобы в точности отвечать существующим условиям. Они превосходны для работы при высоких давлениях. ЛОВИЛЬНЫЕ ИНСТРУМЕНТЫ SHAFFER ВТЕЧЕНИЕ МНОГИХ ЛЕТ широко применяются на местных и заграничных промыслах и считаются наиболее продуктивными и надежными инструментами из существующих на рынке. Обратитесь к конденсированному каталогу 1936 года, или требуйте наш новый каталог.

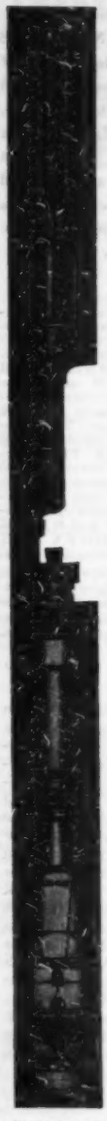
La Shaffer Tool Works fabrica un surtido completo de equipo de perforación de alta presión. Puede suministrar también instalaciones para la perforación y producción de pozos de petróleo o de gas, de cualquier presión que se requiera. Las COMPUERTAS DE CONTROL DE SOTANO SHAFFER dan seguridad máxima en la perforación de pozos de alta presión, procurando un medio positivo para tapar o cerrar pozos contra la explosión cuando la tubería está dentro o fuera del agujero. Resisten perfectamente las más altas presiones de pozo que se presenten. Las CABEZAS DE COLOCACIÓN SHAFFER, TIPO DE CARRETEL proveen un medio de bajar y subir hileras individuales de revestimientos con máxima seguridad y mínimo espacio de sótano. Su empleo simplifica notablemente la colocación de la tubería, acelerando el trabajo al mismo tiempo. Han soportado las hileras más largas y pesadas de revestimientos empleadas en pozos sujetos a las más grandes presiones de perforación moderna. Los REGULADORES AJUSTABLES DE FLUJO SHAFFER controlan la corriente de líquido y regulan la presión y régimen de velocidad con un grado de precisión máximo. Las CABEZAS DE REVESTIMIENTO Y TUBERIA SHAFFER se fabrican en una gran variedad de tipos para responder a las condiciones más exigentes y resultan excelentes bajo las más altas presiones. Las HERRAMIENTAS PESCADORAS SHAFFER se han empleado mucho en el país y el extranjero, desde hace muchos años, y se consideran como las más seguras y eficaces de su clase en el mercado. Pídanos ejemplar de nuestro nuevo catálogo.

Shaffer Tool Works fabrique une série complète de matériel de forage à haute pression, et est à même de fournir des groupes d'exploitation pour le forage et l'épuisement des puits de pétrole ou de gaz, et cela pour toute pression à laquelle on peut avoir affaire. LES VANNES SHAFFER DE CONTROLE DE JAILLISSEMENT assurent un maximum de sécurité dans le forage des puits à haute pression, et offrent un moyen d'obturation des puits prévenant les éclatements, que la tuyauterie soit à l'intérieur ou à l'extérieur du puits, et elles résisteront positivement en contact avec les plus fortes pressions de puits que l'on connaisse. LES BOBINEUSES SHAFFER POUR LA DESCENTE DES REVETEMENTS DE PUITS offrant le moyen idéal de descendre et de poser les rangées de revêtments de puits, avec un maximum de sécurité et un minimum d'espace de fond. Leur emploi simplifie à un haut degré et accélère vivement la pose de la tuyauterie. Ces bobineuses ont supporté les rangées de revêtements les plus longues et les plus lourdes, et ont été employées pour des puits où l'on a rencontré les plus fortes pressions en forage moderne. LES BALANCIERS SHAFFER D'ECOULEMENT REGLABLE règlent l'écoulement du liquide, à savoir sa pression et sa vitesse, et cela avec les tolérances les plus réduites. LES TETES SHAFFER DE TUBAGE ET DE REVETEMENTS sont fabriqués dans une grande variété de types répondant aux conditions d'emploi les plus strictes, et se distinguent en service sous les plus fortes pressions. LES OUTILES DE REPECHAGE SHAFFER sont d'un emploi général sur les champs pétroliers aux Etates-Unis et à l'étranger depuis bien des années, et sont considérés sur le marché comme les outils les plus efficaces et les plus sûrs en service. Consultez le catalogue général de 1936 ou demandez-nous notre nouveau catalogue.

SHAFFER TOOL WORKS
BREA, CALIFORNIA — HOUSTON, TEXAS
EXPORT OIL WELL SUPPLY COMPANY

EASTMAN SINGLE SHOT SURVEYS

The Eastman Single-Shot Survey Instrument records for you at all times the exact location of the bottom of your well. An actual photograph showing the angle and direction of deviation, taken at any desired depth, is available for checking within 5 minutes after the instrument is run. This instrument, which made controlled directional drilling possible, is run with regulation bailing equipment or on drill pipe, in either cased or open hole. It comes to the operator with a kit of supplies sufficient for 30 days work, is furnished with a water-tight container, and is easily operated by the average field man.



EASTMAN Single-Shot Survey Instrument

Инструменты Eastman Single-Shot (с одиночной вспышкой). Вы можете получить в любых условиях снимок точного расположения дна Вашей буровой скважины. Действительная фотография, указывающая угол и направление отклонения, может быть взята на любой желаемой глубине и бывает готова для просмотра через 5 минут после того, как инструмент извлечен из скважины. Этот инструмент дает возможность контролировать направление бурения. Его можно опускать либо на насосных штангах, либо на бурильных трубах, как в открытую скважину, так и в скважину, в которой имеются обсадные трубы. Этот инструмент доставляется буровому мастеру в непромокаемом футляре и с запасом принадлежностей, достаточным для 30-ти дней работы. Средний промысловый работник легко справляется с этим инструментом.

Los instrumentos de exploración Eastman de indicación instantánea permiten determinar, en todo momento, la posición exacta del dondo de los pozos en curso de perforación o sondeaje. Dentro de 5 minutos, a continuación del empleo de este instrumento, se obtiene una fotofrafia precisa, que muestra el ángulo y la dirección de toda desviación, no importa a qué profundidad. Este instrumento, que ha hecho posible la perforación bajo dirección gobernada, se emplea con equipo corriente de achicar o con tubería de perforación, tanto en agujero de sonda sin revestimiento, como en agujero con revestimiento. Se suministra al explotador de petróleo con un estuche de abastecimientos suficientes para 30 días de trabajo. Va provisto de un receptáculo hermético al agua y puede manejarse con facilidad por cualquier obrero.

Les instruments de prospection Eastman à indication instantanée vous permettent de déterminer à tout moment la position exacte du fond du puits en cours de forage. Dans les 5 minutes qui suivent l'emploi de cet instrument, on obtient une photographie précise qui fait ressortir l'angle et la direction de toute déviation, et cela à n'importe quelle profondeur. Cet instrument, qui a rendu possible le forage à direction contrôlée, s'emploie avec l'équipement de réglage d'écoupage ou sur tuyau de forage, et cela en trou de forage ouvert ou à revêtement. Il est fourni à l'emploiteur pétrolier avec une trousse de fournitures prévue pour 30 jours de travail, est équipé d'un réservoir étanche à l'eau, et se manipule sans aucune difficulté par l'ouvrier pétrolier moyen.

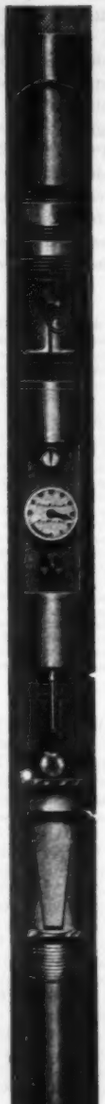
EASTMAN DRIFT INDICATOR

The Eastman Drift Indicator is only 1½ inches in diameter and is contained in a 1¾-inch protective case. It is lowered in the hole on a steel line or dropped in a go-devil, the diameters being small enough to pass easily through tool joints. The instrument consists of a small battery, a special Eastman-built clock, a camera, one light bulb, an angle unit and one magazine of 60 photographic discs. The angle unit, like that of the Single-Shot, is a set of weighted cross hairs suspended on frictionless gimbles above a glass calibrated in etched concentric circles.

Индикатор Eastman для определения направления движения имеет в диаметре всего 1¾ дюйма и заключен в защитный кожух, диаметром в 1¾". Он опускается в скважину на стальном канате или бросается в не с инструментом, прочищающим трубы (go-devil). Диаметр индикатора настолько мал, что он легко проходит через отверстия соединительных замков. Инструмент состоит из маленькой батареи, специальных часов, изготовляемых фирмой Eastman, фотографической камеры, одной электрической лампочки, углового приспособления и магазина с 60-ью чувствительными фотографическими дисками. Угловое приспособление такое-же, как и на инструменте Single-Shot, и состоит из комплекта вавешенных крестообразно-расположенных волосков, подвешенных на антифрикционных подвесках над стеклом, на котором отгравированы калиброванные концентрические окружности.

El indicador de desviación Eastman tiene apenas un diámetro de 1½" y está protegido en un una caja de 1¾". Se le baja por el agujero o pozo de perforación por medio de un cable de acero, o se le deja descender en raspador "go-devil", siendo sus diámetros tan pequeños que puede pasar fácilmente por las conexiones de los útiles. Este instrumento de compone de una pequeña bateria, de un péndulo especial de construcción Eastman, de un aparato fotográfico, de una bombilla eléctrica, de un grupo de ángulo y de una caja que contiene 60 discos fotográficos. El grupo de ángulo, como en el caso del instrumento de indicación instantánea, es un juego de crines en cruz suspendidos por articulaciones sin fricción encima de un vidrio calibrado en circulos concéntricos grabados en agua fuerte.

L'indicateur de déviation Eastman n'a qu'un diamètre de 1½ pouce et est logé dans un étui protecteur de 1¾ pouce. On le descend dans le trou de forage au bout d'un câble d'acier, ou on le laisse descendre dans un râcleur "go-devil", les diamètres en étant prévus assez petits pour pouvoir passer facilement dans les joints d'outils. Cet instrument se compose d'une petite batterie, d'une pendule spéciale de construction Eastman, d'un appareil photographique, d'une ampoule électrique, d'un groupe d'angle, et d'une case contenant 60 disques photographiques. Le groupe d'angle, comme dans le cas de l'instrument à indication instantanée, est un jeu de crins lestés en croix, suspendu sur articulations à cardans sans friction au-dessus d'un verre étalonné de cercles concentriques gravés à l'eau forte.



EASTMAN Drift Indicator

CHIKSAN ALL STEEL ROTARY HOSE

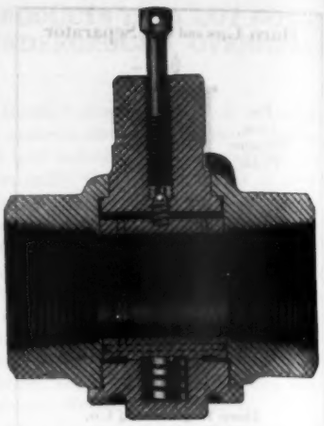
The Chiksan 4" All Steel Rotary Hose, as illustrated, is especially designed and built to keep in trend with modern drilling equipment. This 4"x45' seven joint Hose weighs but 1,050 pounds. Any desired length of hose made to order. Double rows of ball bearings insure ease of turning under all working conditions. Carefully designed packing sets solve leakage problems. All moving parts are lubricated by Alemite. Manufactured also in 3" size. Write for descriptive catalog.

На иллюстрации изображен 4-х дюймовый грязевый шланг Chiksan, сделанный целиком из стали. Его конструкция и методы изготовления расчитаны на требования современного вращательного бурения. 4-х дюймовый шланг длиною в 45 фут. состоит из семи секций и весит 1050 англо-фунтов. Шланги любой длины изготовляются по заказу. Двойной ряд шариковых подшипников обеспечивает легкость вращения при любых условиях работы. Тщательно сконструированные сальники исключают возможность пропусков жидкости. Все движущиеся части смазываются принудительной смазкой Alemite. Эти шланги изготовляются также диаметром в 3". Требуйте наш каталог с описанием шлангов.

La manguera rotatoria Chiksan de 4" enteramente de acero, que aquí ilustramos, ha sido proyectada y construída especialmente en armonía con los modernos equipos de perforación. Esta manguera de 4" x 45' de siete uniones pesa sólo 1.050 libras. A la orden suministramos esta manguera en cualquiera longitud que se pida. Una doble corrida de cojinetes de bolas asegura fácil movimiento giratorio bajo todas las presiones de trabajo. Su empaquetadura de especial proyecto resuelve el problema de escape. Todas las piezas móviles van provistas de lubricación Alemite. Se ofrece también en tamaño de 3". Pídanos catálogo descriptivo.

Le flexible rotatif tout acier Chiksan de 4 pouces, selon illustration, a été étudié et construit spécialement pour s'adapter aux tendances du matériel moderne de forage. Ce flexible de sept joints de 4 pouces sur 45 pieds ne pèse que 1.050 livres. Toute longueur désirée de ce flexible est fournie sur commande. Des rangées doubles de roulements à billes assurent la facilité pour tourner dans toutes les conditions d'opération. Des jeux de garnitures soigneusement étudiés fournissent la solution des problèmes de fuites. Toutes les pièces mobiles sont lubréfiées au moyen d'Alemite. Fabriqué aussi de la grandeur de 3 pouces. Demandez-nous le catalogue descriptif.

CHIKSAN OIL TOOL CO., LTD.
Fullerton, Calif., U.S.A.
Gulf Engineers Inc., Houston, Texas.



Newman-Milliken Glandless Lubricated Plug Valves are made in straight through rectangular port, round port, three-way and bib types in cast steel, cast iron, gunmetal, aluminum, acid resisting bronze, ni-resist, stainless steel and aterite metals; for working pressures from vacuum up to 3,000 lbs. per sq. in. and temperatures up to 450 degs. F. The absence of all glands, gaskets and packing, together with the parallel (cylindrical) plug construction, ensuring the working surfaces always being in perfect contact, and preventing the access of all foreign matter, positively guarantees these valves to have a far longer life than any other known make.

Задвижки Newman-Milliken не имеют сальников и снабжены цилиндрической пробкой, которая смазывается. Проходные каналы задвижек могут быть прямоугольного или круглого сечения, а также прямолинейного направления, трехходовые или возвратные на 180°. Эти задвижки изготовляются из литой стали, чугуна, пушечной стали, алюминия, бронзы не подвергающейся влиянию кислот, металла марки ni-resist, нержавеющей стали и др. сплавных металлов. Они пригодны для рабочих давлений от вакуума до 3000 англо-фунтов на кв. дюйм и для температуры до 450° по Фаренгейту. Отсутствие сальников, прокладок и набивок, а также параллельная (цилиндрическая) конструкция пробки, обеспечивают постоянный и правильный контакт рабочих поверхностей и не допускают отлагания посторонних веществ, а также вполне гарантируют значительно более долгосрочную работу этих задвижек по сравнению со всеми другими имеющимися на рынке.

Las válvulas de obturación Newman-Milliken lubricadas sin prensaestopa se hacen en tipos de orificio recto rectangular, orificio circular, de tres vias y de boca dirigida hacia abajo, de acero fundido, de hierro fundido, bronce de cañón, aluminio, bronce resistente al ácido, acero inoxidable, metal "nuresist, y metales aterites", para presiones de trabajo de vavio a 3.000 libras por pulgada cuadrada y temperaturas hasta de 450 grados F. La ausencia de collares, rellenos y empaquetadura, en combinación con la construcción paralela (cilindrica) del tapón, que asegura perfecto contacto permanente a las superficiets de trabajo, evitando el acceso de toda substancia extraña, asegura positivamente a estas válvulas una duración mucho mayor que la de toda otra marca.

Les soupapes d'obturation Newman-Milliken, lubréfiées sans presse-étoupe, sont fabriquées en types à orifice de part en part, rectangulaire, rond, à trois passages, ou à suintement. Elles se font en acier coulé, fonte, bronze à canon, aluminium, bronze à l'épreuve des acides, métal "nirésist", acier inoxydable, et métaux atérite. Elles prevoient des pressions opératoires allant du vide à 3000 lbs. au pouce carré et des températures allant jusqu'à 450 degrés F. L'absence de tout presse-étoupe, joint et garniture, ainsi que la construction de type parallèle (cylindrique) de l'obturateur, maintiennent les surfaces qui travaillent toujours en contact parfait et préviennent l'introduction de tout corps étranger, ce qui assure positivement à ces soupapes une durabilité nettement plus grande que celle offerte par toute autre marque.

NEWMAN, HENDER & CO., LTD.
Woodchester, Glos, England

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Texas	Oklahoma	California
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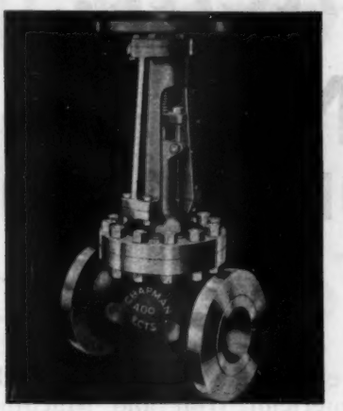
Export: H. JOHN EASTMAN
2895 American Ave., Long Beach, Calif., U.S.A.

CHAPMAN VALVES FOR ALL OIL INDUSTRY SERVICES



Valves and fittings for all oil field and refinery applications are included as standard models in the complete line manufactured by The Chapman Valve Manufacturing Company, Indian Orchard, Massachusetts, U.S.A.

Types include gate, globe, angle and check valves, in all sizes from ¼ inch to 9 feet. They are designed for pressures from 25 to 1500 pounds per square inch, and for temperatures ranging from 50 degrees below zero F. to 1000 degrees above.

Materials used are iron, bronze, cast steel, forged steel, and all standard alloys; including Chapman Chrome Tungsten Steel, the patented alloy developed in the Chapman Laboratories for high temperatures, high pressures, and severe corrosive conditions. Valves of this alloy have given years of trouble-free service on installations which destroy ordinary valves in a few weeks.

For complete information, specifications, design features, prices, write for bulletins.

Полный список изделий фирмы Chapman Valve Manufacturing Company, Indian Orchard, Massachusetts, U.S.A., включает задвижки и фитинги для всех нужд нефтяных промыслов и нефтеперегонных заводов.

В этот список входят задвижки, вентили, угловые задвижки и приемные клапаны всех размеров от ¼" до 9-ти фут. Они сконструированы для давлений от 25 до 1500 англо-фунтов на кв. дюйм и для температур от 50° ниже нуля по Фаренгейту до 1000° выше нуля.

Материалами служат чугун, бронза, литая сталь, кованная сталь и всевозможные стандартные сплавы, включая хромо-вольфрамовую сталь Chapman, и патентованный сплав, разработанный в лабораториях Chapman для высоких температур, больших давлений и тяжелых раз'едающих условий работ. Задвижки из этого сплава работают годы без каких-либо осложнений на установках, где обыкновенные задвижки разрушаются втечение нескольких недель.

Просим требовать наши бюллетени, где имеются полные информации, спецификации, указаны конструктивные преимущества и обозначены цены.

Válvulas y conexiones para toda aplicación a explotación de petróleo y refinería se incluyen como modelos corrientes en el gran surtido fabricado por The Chapman Valve Manufacturing Company, Indian Orchard, Massachusetts, E. U. A.

Entre otros tipos se incluyen válvulas de compuerta, de globo, angular y de retención, en todo tamaño, desde ¼" a 9 pies. Sirven para presiones de 25 a 1.500 libras por pulgada cuadrada, y para temperaturas de 50 grados F bajo cero a 1.000 grados F. sobre cero.

Los materiales empleados son hierro, bronce, acero fundido, acero forjado y todas las aleaciones corrientes, incluyendo la aleación de acero Chapman al cromo y tungsteno, perfeccionada en los laboratorios de la fábrica Chapman para resistir altas temperaturas, grandes presiones y severas condiciones corrosivas. Las válvulas hechas de esta especial aleación han dado muchos años de servicio extento de molestias en instalaciones en que las válvulas ordinarias duran sólo pocas semanas.

Para información completa, características, detalles de construcción y precios, pídanos boletines.

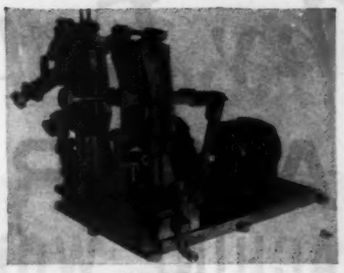
Les soupapes et les garnitures pour toutes les applications de champs et raffineries de pétrole sont comprises comme modèles standard dans la série complète fabriquée par la Chapman Valve Manufacturing Company, Indian Orchard, Massachusetts, U. S. A.

Les types prévus comprennent des soupapes à vanne, à globe, d'angle et d'arrêt, dans toutes les grandeurs allant d' ¼ de pouce à 9 pieds. Elles sont prévues pour des pressions allant de 25 à 1500 livres par pouce carré, et pour des températures allant de 50 degrés en-dessous de zéro F. à 1000 degrés au-dessus.

Les matériaux employés sont le fer, le bronze, la fonte, l'acier forgé et tous les alliages courants, y compris l'acier au tungstène et au chrome de Chapman, l'alliage breveté mis au point dans les laboratoires Chapman afin de résister aux hautes températures, aux hautes pressions et aux conditions corrosives marquées. Les soupapes en cet alliage ont donné des années de service sans le moindre ennui sur des installations qui d'ordinaire mettent les valves hors service en quelques semaines.

Pour obtenir documentation complète, spécifications, caractéristiques de construction, prix et autres précisions, demandez-nous nos brochures.

THE CHAPMAN VALVE MFG. COMPANY
INDIAN ORCHARD, MASSACHUSETTS, U.S.A.



"M" TYPE

HILLS-McCANNA CHEMICAL PROPORTIONING PUMPS

Illustrated is one of four types of Chemical Proportioning Pumps we manufacture and around which many sizes and assemblies are built.

These pumps offer a positive mechanical means of injecting predetermined amounts of liquids into continuous processes. They will handle corrosives or non-corrosives, caustic solutions and various treating agents for crude oil or distillates.

Capacities range from 0 to 2,000 gallons per hour, available for pressures up to 12,500 pounds.

Special catalog on request.

На иллюстрации изображен один насос для химических продуктов из четырех типов, изготовляемых нами. Мы строим по этому типу насосы разнообразной производительности и разных комбинаций.

Эти насосы представляют собою вполне надежные механизмы для подачи заранее определенных количеств жидкости, потребных при непрерывных процессах. Они пригодны для перекачки раз'едающих и нераз'едающих жидкостей, едких растворов и разных агентов, применяемых для обработки сырой нефти или дистиллатов.

Производительность насосов варьирует от 0 до 2000 галлонов в час. Они строятся для давлений до 12.500 англо-фунтов.

Специальный каталог высылается по требованию.

Mostramos aquí uno de los cuatro tipos de bombas químicas de proporción, que nosotros fabricamos y que sirven de base a numerosos equipos de diversas capacidades.

Estas bombas ofrecen un positivo medio mecánico para la inyección de cantidades predeterminadas de liquidos en un procedimiento continuo. Manejan substancias corrosivas y no corrosivas, soluciones cáusticas y los otros varios agentes químicos que se usan para la refinación de petróleo crudo y destilados en general.

Las capacidades varían de 0 a 2.000 galones por hora, con presiones de trabajo hasta de 12.500 libras.

Catálogo especial a solicitud.

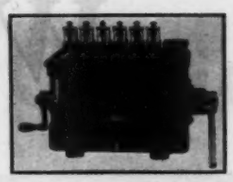
La gravure représente un des quatre types de pompes-doseuses chimiques que nous fabriquons, pour lesquelles il est prévu toute une gamme de grandeurs et d'ensembles divers.

Ces pompes offrent un moyen mécanique positif d'injecter des quantités préalablement déterminées de liquides dans des processus continus. Elles peuvent être employées pour pomper des liquides corrosifs ou non corrosifs, des solutions caustiques et divers agents de traitement pour le pétrole brut ou les produits de distillation.

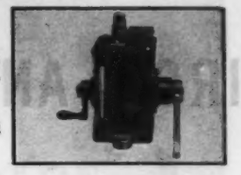
Les débits prévus vont de o à 2.000 gallons à l'heure, et les pressions vont jusqua'à 12.500 livres.

Catalogue spécial sur demande.

HILLS-McCANNA CO.
2351 Nelson Street, CHICAGO, ILL., U.S.A.



6 PINT 6 FEED MODEL "ET" TYPE "SF" FORCE FEED LUBRICATOR



2 PINT SINGLE FEED MODEL "ET" TYPE "SF" LUBRICATOR

HILLS-McCANNA FORCE-FEED LUBRICATORS

Hills-McCanna Company has been building mechanical oil pumps for over 35 years and were the first in the field of force-feed lubrication.

The Lubricators are available in three models, each built on the single plunger pumping principle with ball check valves, representing a combination of the most efficient means of delivering oil under constant pressure.

They may be driven by motor, belt, reciprocating lever, or directly mounted on the equipment served. Used for oiling all classes of equipment. Single or multiple feed units are available.

Write for special catalog.

Фирма Hills-McCanna Company строит втечение более 35-ти лет механические насосы для нефти и была первой, применяющей в этой области принудительную смазку.

Лубрикаторы поставляются трех моделей, каждая из которых построена по принципу одно-плунжерного насоса с шариковым приемным клапаном, что представляет собою наиболее эффективную комбинацию для подачи масла под постоянным давлением.

Они могут быть приводимы в действие от мотора, ремнем, рычагом движущимся взад и вперед, или они могут быть монтированы непосредственно на той машине, которую они обслуживают. Эти лубрикаторы применяются для смазки всевозможных механизмов. Установки могут быть для одиночной или многоступенчатой смазки.

Требуйте наш специальный каталог.

La Hills-McCanna Company ha venido fabricando bombas mecánicas de petróleo desde hace más de 35 años, las cuales fueron las primeras en el campo de la lubricación bajo presión.

Los lubricadores se ofrecen en tres modelos, cada uno proyectado sobre el principio de un solo émbolo, con válvulas esféricas de retención, representando una combinación de los medios más eficaces para la circulación del aceite bajo constante presión.

Pueden accionarse con motor, transmisión por correa, palanca de movimiento alternativo o instalarse directamente encima del equipo a que ha de servir. Sirven para la lubricación de toda clase de equipos. Se ofrecen en modelos sencillos y en modelos múltiples. Pídanos nuestro catálogo

La Hills-McCanna Company fabrique des pompes à pétrole mécaniques depuis plus de 35 ans, et a été la première dans le domaine de la lubrification sous pression.

Les Lubrificateurs sont offerts en trois modeles, chacun d'eux étant construit selon le principe de pompage à plongeur unique avec soupapes d'arrêt à bille, constituant une combinaison des moyens les plus efficaces d'alimenter en huile sous une pression constante.

Ils peuvent être actionnés par moteur, courroie, levier alternatif, ou directement montés sur l'équipement dont on se sert. Ils s'emploient pour huiler tous genres de matériel. Il est offert des groupes à alimentation unique ou multiple.

Demandez-nous notre catalogue spécial.

Why Experiment?

AMERICAN
IRON AND MACHINE WORKS COMPANY PRODUCTS
Give "Perfect Performance"

Experimenting with Fishing tools and Drilling equipment of unknown quality often brings delays and unnecessary expense: On the contrary, maximum efficiency and economy is accomplished through use of products of proven ability, value and durability.

When you are in fields where rotary drilling is used you'll see American Iron and Machine Works Co., Products in use and you will soon learn why they have established an international reputation for getting the job done well.

Releasing and Circulating Spear Pat'd

American RELEASING AND CIRCULATING SPEAR

Many difficult fishing jobs have been completed with this spear after other tools have failed. Its outstanding performance is due to simplicity of operation, ruggedness and absolute dependability of releasing and circulating. Has a hollow stem for fluid circulation. The releasing nut slides vertically on the stem and key. The box of the slip is threaded right hand to allow quick, easy release.

Tapered Tap

American TAPERED TAP

A tap that will pick up coupling, pipe and tool joint where others fail. It possesses extra strength and toughness, and will bend before it will break. Forged from high grade, specially heat treated steel, and designed with modified taper to assure firm hold.

Rocker Arm—Pat. app. for

AMERICAN ROCKER ARM

This Arm eliminates the need for rollers and other wearable parts on ordinary rocker arms; makes your pump run smoother. Piston rods can be rotated to prevent pistons from wearing on one side. Plunger runs in oil bath — dust, sand, mud and grit proof.

CHECK THIS LIST

- Back-up Tools
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- Casing Suspenders
- Tubing Suspenders
- Tapered Taps
- Forged Steel Tees
- Release Valves
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American CASING SUSPENDER

Especially adapted for use where high pressure and several sands are encountered. Prevents blowouts between strings of casing; allows suspension at any point in hole; fireproof, salt water resisting composition packing; has outside thread for use should well go wild. Four tie down lugs on sides to use with American Tie Down Flange or other methods that might be used—Tested to 5000 pounds.

Casing Suspender and Blowout Preventer Patented

American SUCKER ROD COUPLING and Paraffin Scraper

A valuable tool for keeping paraffin out of tubing; as guide for crooked holes; to take whip and slap out of rods; to prevent a worn string of tubing; to help eliminate pulling rods. One piece, special heat treated alloy steel.

Patented

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JAMES A. THOMAS

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Parkersburg Rig & Reel Co.
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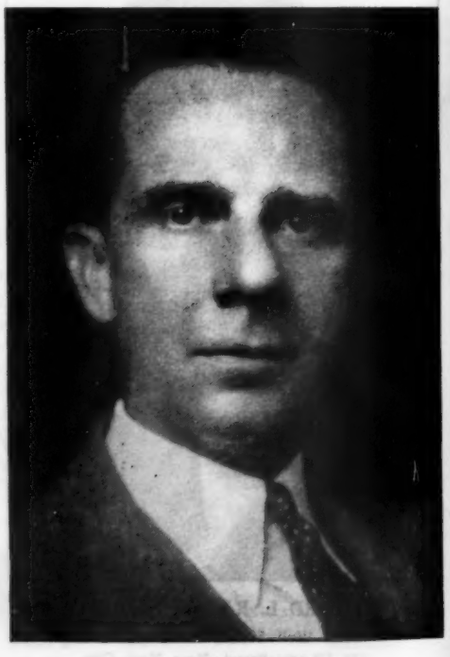

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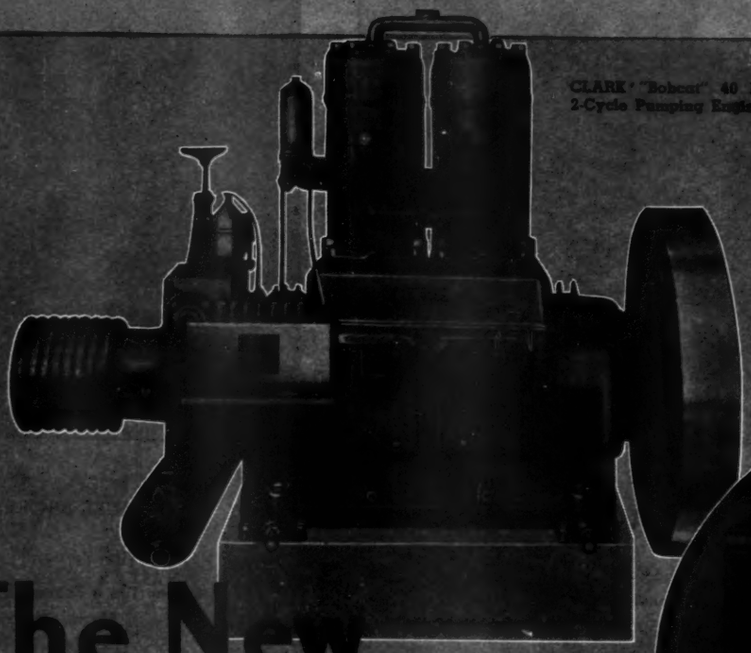
THE CLARK "Bobcats" BLESSED EVENT



CLARK "Bobcat" 40 H. P. 2-Cycle Pumping Engine.

CLARK "Bobkitten" 20-30 H. P. 2-Cycle Pumping Engine.

The New "Bobkitten"

The CLARK "Bobcat", above, introduced early this year, offered advantages which earned for it a hearty welcome and a steadily increasing demand.

Now, in response to demand for a smaller pumping engine of similar type, CLARK is pleased to announce the "Bobkitten", built on exactly the same principle but in 20-30 H. P. size.

Designed especially for oil well pumping, these engines offer the advantages of 2-cycle simplicity and of moderate speed, insuring long life. These units are built to operate out of doors saving the expense of a belt house, the vertical design and short belt saving about 50% in floor space and 55% in foundation costs.

Our nearest office will be glad to give complete details.

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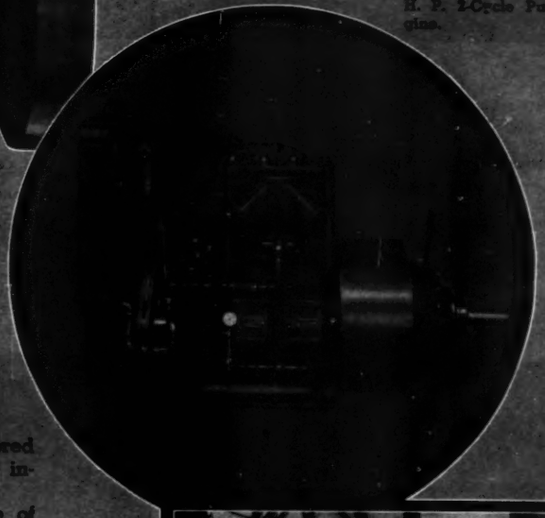

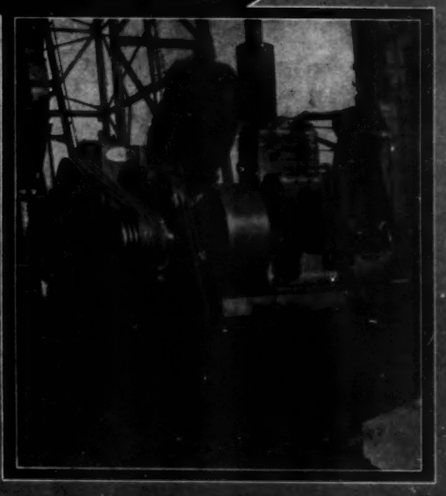

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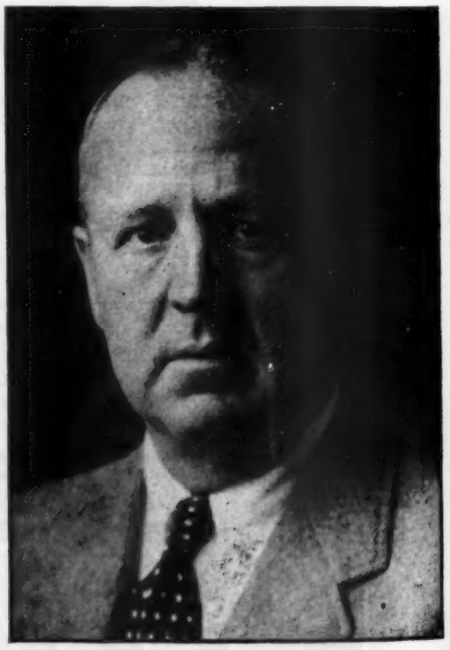

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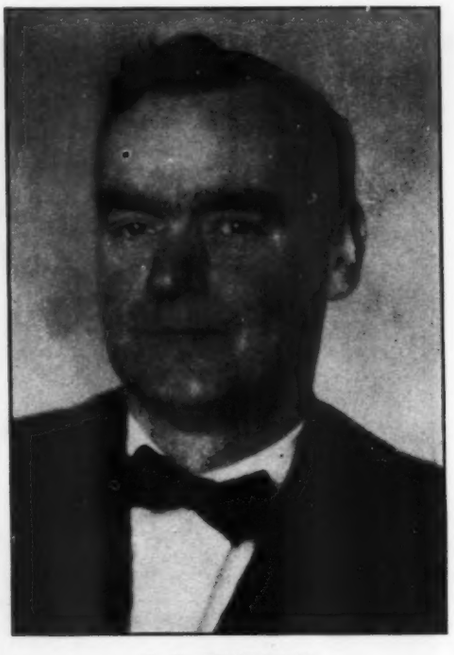

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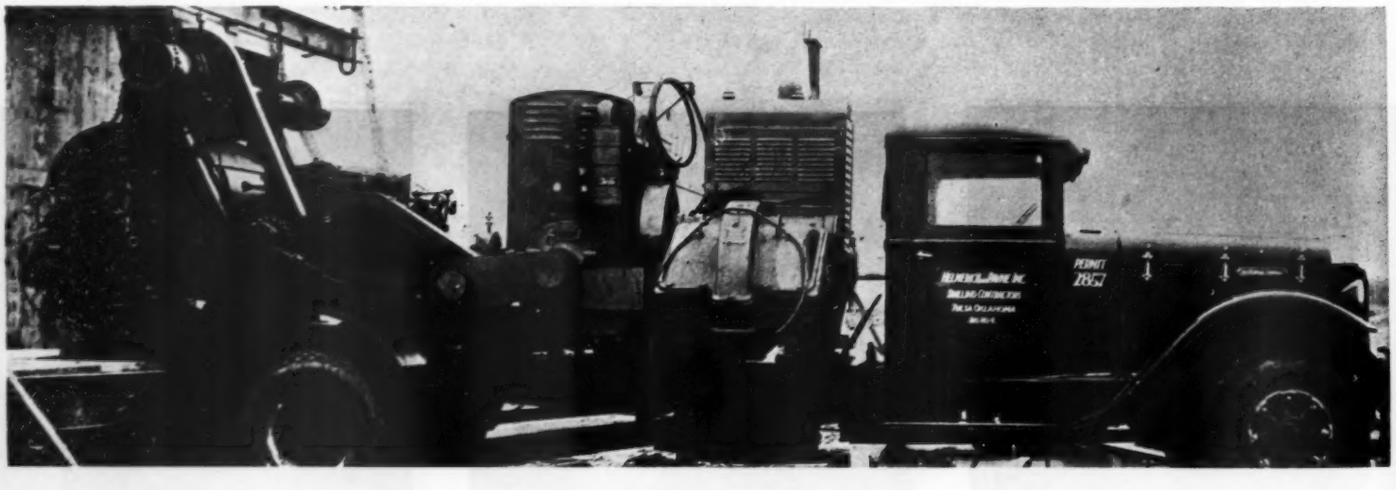

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Southwest Texas District

By
GEORGE WEBER

PLYMOUTH 2-MILE OUTPOST MAKES 428 BBLS. ON CHOKE

SAN ANTONIO, Tex., Dec. 23. — Sustained drilling activity throughout Southwest Texas marked the week's operations, with centers of interest still in the lower coastal fields of Nueces and San Patricio Counties and parts of the Laredo district. Wildcatting declined somewhat due to continued rains and failures in several counties, but is still comparatively active. A large number of new locations made in Duval County fields point to increasing development of those fields. Leasing continued heavy in the areas surrounding newly discovered production, especially in San Patricio County.

During the week, No. 1 Britton, wildcat test of George E. Smith was completed for a 2-mile extension of the Plymouth field in San Patricio County. The well, bottomed in the Greta sand at 4,905 feet made an initial flow of 425 bbls. per day on an eighth-inch choke. Corrected reports place the producing sand at 4,882-4,906 feet. In the vicinity and all intervening areas between the wildcat and the field, acreage has been leased, and several tentative locations have been named. Acreage is held predominently by major oil companies in comparatively small tracts, due to the subdivision of the country into farm lots.

In the Plymouth field the only actively drilling proven territory in the county, 10 rigs are operating. Increased activity is noted in the south end of the field, where a third and deeper sand is being developed by the Magnolia Petroleum Co. None of the three producing horizons of the field proper have been investigated in the southern extension well which has pay in the Greta, a sand that tested salt water in the field proper. Of the 10 wells drilling in the Plymouth field, 7 are on or approaching the sand, and several completions are due this week. Sun Oil Co. has started operations on two locations on the south edge. All present indications point to the speedy development of a major field in this area. Construction of a second pipe line outlet, recent price increase for crude purchased by the Republic Pipe Line Co. and extensive additional acreage apparently proven, contribute to this development.

Nueces County

In Nueces County, attention is directed to two tests approaching the sand in the Clara Driscoll field. The Santa Clara Oil Co. (Atkins & O'Neil) No. 2 Driscoll is shut down at 3,640 feet for minor repairs, and will begin coring for the sand the latter part of the week. This test is an offset to the discovery well, producing from 3,808-16 feet. Two miles to the northeast, the Masterson No. 1 Eschberger is drilling below 3,447 feet.

The largest transaction in the new field, came this week in the sale of a half interest in 730 acres owned by the Santa Clara Oil Co. to the Pan American Petroleum & Transport Co. The next wells to be started will probably be two which Dirks Brothers of Tuleta will begin shortly on the Margaret Parr tract about 9,000 feet north of the discovery well. Little is known of the extent or nature of this field as yet, with but one producer.

Duval County

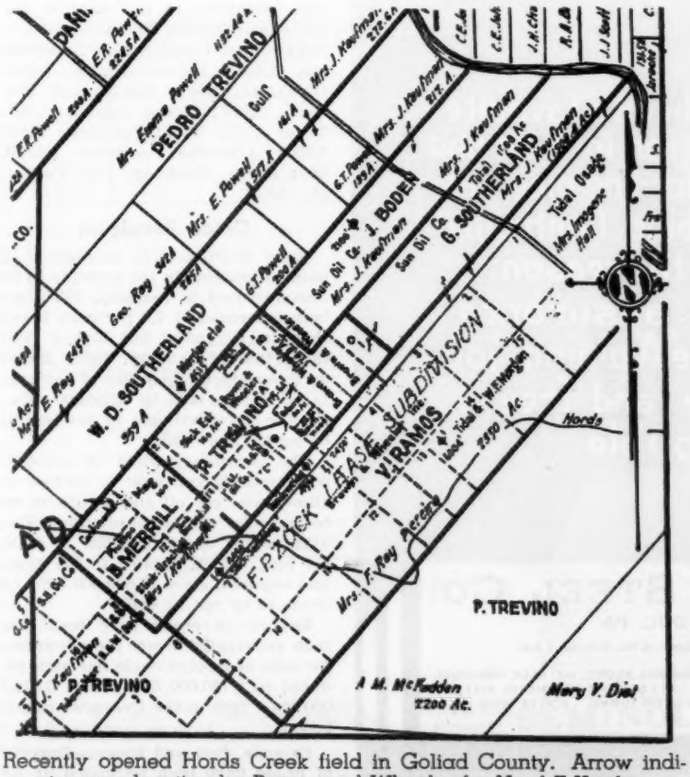
Duval County activity centered around Loma Novia and Seven Sisters with several completions in the two fields and many new locations staked. In Loma Novia 11 completions were made and 18 tests begun. Among the new producers Bridwell Oil Co. initialled an estimated 20 bbls. per hour from No. 4 B.C.C. in Survey 76; Duval Oil Corp. brought in No. 3 Hahl, Survey 78, for 27 bbls. per hour; Hamil and others completed No. 2-B Hahl and No. 30 Hubbard in Surveys 78 and 77, respectively; Humble Oil & Refining Co. No. 5-C Welder, in Survey 554, on the east edge of the field, made 9½ bbls. per hour; Russ Petroleum Co. No. 2 B.C. C., Survey 76, was completed but not gauged; Shell Petroleum Corp. No. 2 Hahl and No. 19 Hubbard made 257 and 240 bbls. per day, respectively; and Texas Co. completed No. 5 Wendt in Survey 68 for 18 bbls. per hour, and No. 13 Wendt, same survey, for 50 bbls. per day.

Government Wells will have three new tests, Magnolia Petroleum Co. Nos. 5 and 6 Bryan White in Survey 44, and Tom Graham No. 3 Webb in Survey 41. In this field Magnolia completed No. 9 Johnson, Survey 44, on the pump. The same company will start another test in the Piedra Lumbre field northwest of Government Wells in the No. 3 D.C.R.C., Survey 100.

Seven Sisters Field

Seven Sisters activity will take another spurt with six new tests beginning and other locations announced this week. Among them will be an eastern outpost well, Westheimer & Daube No. 2 Z. Campos in the northeast corner of Survey 224. The same company No. 1 Campos was recently completed in the southwest corner of the same survey for 27 bbls. per hour from the shallower Chernosky sand. A south offset to this completed well is starting. George Coates is moving in on the location for No. 1 Telford in Survey 386. Atlantic Oil Producing Co. is working southward onto its Welder "C" lease in Survey 591, and staking locations for additional wells in the "A" lease in Survey 385. On the west, the Santa Clara Oil Co. and Harvey and Henderson have set surface casing in No. 4-C Welder in Survey 383, located in territory proven by Harvey & Henderson No. 1 Welder, recently brought in in Survey 381. Two other wells were started inside the field by Al Buchanan and Blanco Oil Co. and Humble Oil & Refining Co. Completions in the field included Atlantic Oil Producing Co. No. 5-A Welder for 126 bbls. in 12 hours, and Humble No. 2-B Serna, west offset to Westheimer & Daube No. 1 Campos, for 17 bbls. per hour.

Magnolia Petroleum Co. No. 1 Milano Land & Gardens was abandoned at 3,711 feet. This test was located about 2 miles east of the Loma Novia field. To the south, in the Hoffman area, Rogers & Rogers will drill a wildcat in Survey 117.



Recently opened Hords Creek field in Goliad County. Arrow indicates new location by Brown and Wheeler for No. 1-F Kaufman

(Map by Porter Regenold, Corpus Christi)

Webb County Completions

In Webb County the O'Hern field had one completion and the Lopez two. Four new locations were announced for the O'Hern field, three by Magnolia and one by Texas Co. The Cole field has one well drilling on Block 1, Survey 13, by the Cole Petroleum Co. Of the three deep tests drilling in the county, Holland Reavis No. 1 Webster, in the Carolina-Texas field, is spudded in; California Co. and Mills Bennett No. 1 Billings wildcat, in Survey 45, is coring below 1,880 feet, and J. E. Neal No. 1 Laurel Brothers wildcat in Survey 119, is drilling below 5,000 feet. All three are Mount Selman tests. One wildcat was abandoned in the county during the week, O. W. Killam No. 1 Ortiz on the 73,000-acre lease near Laredo. The rig is being moved to a location to the north. Killam has made location for a third test of the block in Survey 1805.

Starr County

Starr County continued the most active in the Lower Rio Grande Valley with five new locations staked during the week. Four of these are wildcats. Hiram Reed No. 1 Starr County Cattle Co. is still attracting attention. It is bottomed at 2,560 feet and swabbed some oil with much salt water through perforations at 2,511-22 feet. The well maintains a pressure of 600 to 750 pounds when closed in. The wildcat is located about 1½ miles south of the Barbacoas field. Three rigs have moved into the vicinity of Ash and Tackett No. 1 Margo which found shallow production around 375 feet.

In Samfordyce field of Hidalgo and Starr Counties, four tests are on the sand and two others are drilling. Completion is expected of the Union

Sulphur Co. No. 5 American Rio Grande. In the Mercedes field, Hidalgo County, which cored the field sand in a sidetracked hole at 7,488-7,506 feet.

Putnam and Stewart who recently discovered production in Jim Wells County with the No. 1 Hawkins gasser have completed transactions with the Houston Oil Co. for drilling rights on the block recently developed. The Houston Oil Co. has announced location of a test about one-half mile north of the discovery well.

M. P. Tixier, engineer for the Schlumberger Well Surveying Corporation, has been transferred to Midland, Tex., from Houma, La. Up to two months ago he was stationed in Rumania for the company. W. B. Steward, engineer from Columbia, Ohio, will be his assistant at Midland. R. C. Descloux, who has been in charge of the company's office at Midland, has been transferred to Houma, La.

Crude Production Required in January Up 19,000 Bbls.

The daily average required production of crude oil for January, 1936, as forecast by the Bureau of Mines to meet the contemplated demand and to provide for reasonable changes in stocks of both crude oil and gasoline, is 2,559,200 bbls., an increase of 19,000 bbls. over the level suggested for December, and nearly 100,000 bbls. above the allowable for January, 1935. The increase of January, 1936, over December, 1935, resulted from a number of causes, chief of which was a much higher allowance for increases in gasoline stocks, which more than offset the contemplated seasonal decline in motor-fuel demand.

Domestic demand.—The domestic demand for motor fuel for January, 1936, has been estimated at 30,630,000 bbls. This represents an increase of 9 per cent over the actual or reported domestic demand for January, 1935, which, in turn, was not far below the "normal." It is believed that the unusually high refinery shipments to jobbers and retailers in October, 1935, will have been largely consumed before January, 1936. Although it might appear unduly optimistic to predict a 9 per cent increase in consumption to start the new year, it is apparent that the material increase in new car registrations and the general improvement in business conditions have influenced consumption more than contemplated.

Exports.—Exports of motor fuel in October, 1935 (2,461,000 bbls.) were so much below exports in September, 1935 (2,985,000 bbls.) as to indicate that the seasonal decline is exerting a greater effect on such trade than increased orders from Europe. The total for January has, accordingly, been reduced to 2,230,000 bbls. from 2,400,000 bbls. estimated for December, 1935.

Stocks.—Stocks of finished and unfinished gasoline on November 30, 1935, totaled approximately 52,000,000 bbls., indicating an increase of about 2,200,000 bbls. during the month. With the economic level of 66,500,000 bbls. on March 31 as the objective, an increase of 4,230,000 bbls. has been provided for January, 1936.

Gasoline production. — Deducting "direct" sales of 70,000 bbls. from the total demand, and adding the stock increase, gives 36,390,000 bbls. as the required production of finished and unfinished gasoline in January, 1936. The breakdown of this total by districts is as follows (thousands of barrels): East Coast, 6,380; Appalachian, 1,450; Indiana-Illinois, 5,810; Oklahoma, 2,340; Kansas and Missouri, 2,270; Texas Inland, 2,580; Texas Gulf, 7,500; Louisiana Gulf, 1,350; Arkansas-Louisiana Inland, 660; Rocky Mountain, 710; California, 5,340.

Crude Petroleum

Runs to stills.—The percentage of natural gasoline in the gasoline to be manufactured in January, 1936, has been estimated at 7.3 per cent, lower than in December but higher than the actual of January, 1935. Based on this ratio, the quantity of naturals to be utilized will be 2,650,000 bbls., leaving 33,740,000 bbls. of gasoline to be made from crude.

The percentage yield of gasoline will probably continue to decline to allow more gas oil and distillates to be made for winter consumption. The average for January, 1936, is 44.05 per cent, which, applied to the gasoline required, gives 76,590,000 bbls. of crude to be run to stills.

Imports of crude have been less than anticipated, hence the allowance for runs of foreign crude has been reduced to 2,750,000 bbls., from 3,030,000 bbls. used in the December calculations.

Exports, fuel and losses.—Exports of crude have been estimated at 3,570,000 bbls., or practically the same as forecast for December. Transfer of crude to fuel-oil stocks have increased in recent months, particularly in California, hence the estimate for this item (including losses) has been raised to 2,700,000 bbls.

Stocks.—Provision has been made for the withdrawal of 25,000 bbls. daily from crude oil stocks for January, 1936. This compares with a withdrawal of 35,000 bbls. daily recommended in December. Both figures can be said to represent a compromise between the opinions that stocks should be reduced in California, that some major purchasers will continue to draw on their stocks, and that stocks in a few states might well be increased.

Required production. — The proper additions and subtractions of the elements described above give 2,559,200 bbls. as the daily average required production in January, 1936. The equitable breakdown of this figure by states is as follows:

DAILY AVERAGE REQUIRED PRODUCTION
(Barrels)

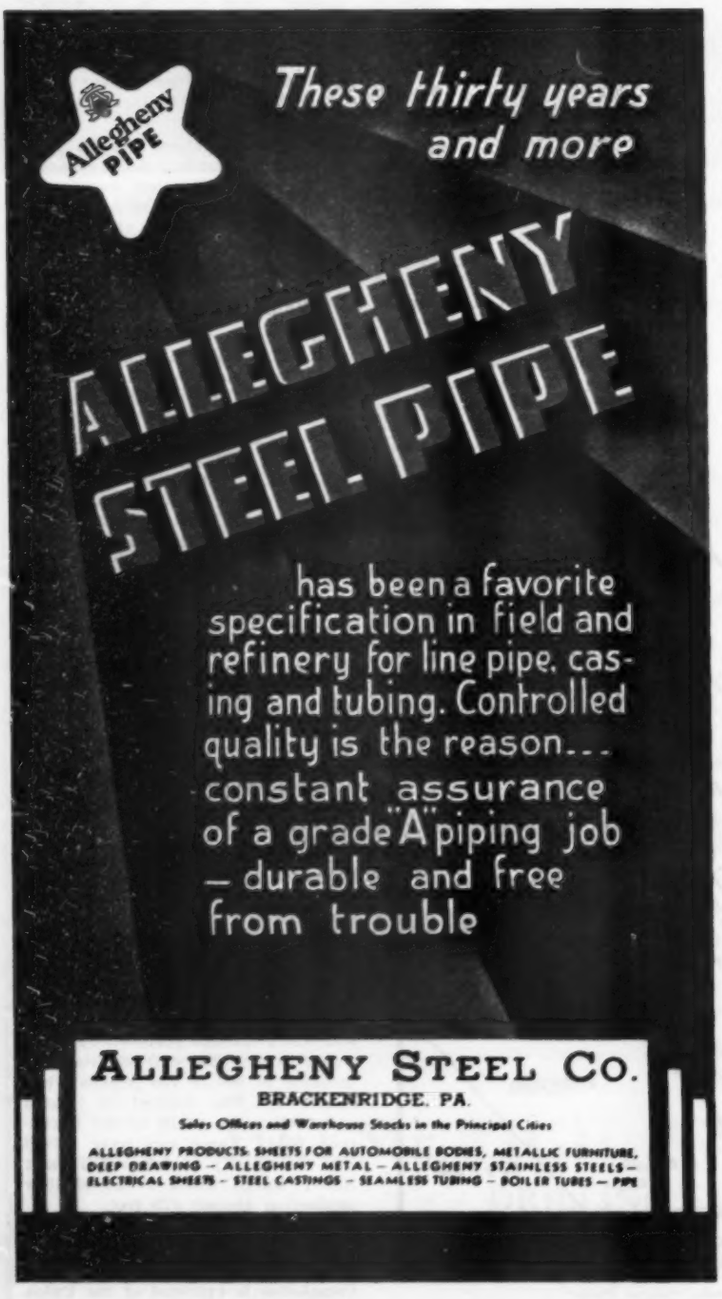
State—	Dec. 1935	Jan. 1936
Texas	1,005,800	1,017,200
California	513,800	517,800
Oklahoma	480,100	481,000
Kansas	138,700	134,000
Louisiana	128,000	132,600
New Mexico	55,500	59,300
Michigan	41,800	42,200
Pennsylvania	39,700	39,700
Wyoming	35,100	33,200
Arkansas	28,100	28,900
Kentucky	14,300	14,500
Montana	11,500	11,300
Illinois	10,900	11,300
Ohio	10,500	10,200
New York	10,300	10,100
West Virginia	10,000	10,000
Colorado	4,000	3,700
Indiana	2,100	2,200
Total	2,540,200	2,559,200

The majority of the states show increases over the recommendations in December, which in most cases probably represented the lowest levels to be established for at least another year. The recommendation for Texas increased 11,400 bbls.; this increase was related principally to the large increase provided for in gasoline stocks on the Atlantic seaboard. The increases in Louisiana, New Mexico and Michigan were reflections of increased interstate movements from those states, at the expense of other states. Oklahoma showed little change, but California's recommendation was higher for the third consecutive month.

SUMMARY OF FORECASTS FOR JANUARY, 1936
(Barrels)

Demand for Motor Fuel:	
Domestic demand	30,630,000
Exports	2,230,000
Total demand	32,860,000
Supply of Motor Fuel:	
Benzol and stabilized natural	700,000
From stocks	—4,230,000
Refinery production	36,390,000
Daily average	1,173,900
Crude Oil Requirements:	
Natural gasoline blended	2,650,000
Percent yield of gasoline from crude	44.05
Refinery crude required	76,590,000
Imports	2,750,000
Exports	3,570,000
Fuel and losses	2,700,000
Total demand for domestic crude	80,110,000
From stocks	775,000
Required production	79,335,000
Daily average	2,559,200

Happy Belting Co., Tulsa, is having a meeting of its entire sales organization on December 30 and 31. All salesmen representing the company from Arkansas; Louisiana; East, North and West Texas; Kansas and Oklahoma, will attend the meeting which was called by the president, Paul Mahaffey.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ORDOVICIAN TEST IN CRANE SHOT; NOT ON PRODUCTION

By
L. E. BREDBERG

FORT WORTH, Tex., Dec. 23.—The feature test in West Texas, Gulf Production Co. No. 1 Waddell, in section 4, Block B-27, in the Tubbs area on the extreme east side of Crane County, was shot this week with 440 quarts of nitroglycerin at 6,300-86 feet and is now cleaning out. This is an Ordovician test appearing as a producer from one of the sections in that deep formation, and has been swabbing considerable oil from the Simpson.

Before shooting it swabbed from 2,450 feet to 5,894 feet, recovering 95 bbls. of oil in 16 hours. Total depth was 6,450 feet, but it was plugged back to 6,317 feet to shut off water and test and shoot upper saturated lime streaks. Gravity of the oil is now reported at 34.8 degrees. Top of the pay is reported at 5,980 feet, in the Simpson. The Ellenberger carried sulfur water from 6,316 feet to the total depth 6,450 feet.

The unit test in section 3, same block and survey as the above mentioned well, is to be drilled under the name of Sinclair Prairie Oil Co. Location was made 330 feet from the south and east lines of the section. It is in search of production in the Tubbs pay, from which the small discovery well is producing in this area. However, the hole will be carried so that it can be drilled to the Ordovician if the Tubbs pay does not supply a commercial producer. The location is about 1½ miles to the south of the Gulf's Waddell test. Shell, Skelly, Penn Oil Co., Tide Water and California Co. are partners in the test.

Farther to the southeast in section 9, same block, about 3 miles southwest of the Gulf's Waddell test, Loffland Brothers expect to carry their No. 1 Tubbs from 4,510 feet down to the Ordovician. This was abandoned a couple of years ago, having failed to pick up the Tubbs or Sand Hills pay, and after plans for carrying it deeper failed.

These two new tests, along with the Gulf-Waddell and Humble Oil & Refining Co.'s test in the NW cor. section 11, same block and survey, will make this the most interesting area in the West Texas district for the next few months. It is apparently the second Ordovician producing area opened in the district, the Big Lake field in Reagan County, to the southeast, having been the first field to see Ordovician production in West Texas.

Ector Wildcat

The new wildcat discovery about 3 miles northwest of Odessa in Ector County, Barnsdall Oil Co. and others No. 1 Foster, in section 13, Block 43, Township 2s, T.&P. Survey, was given a 370-quart shot of nitro and made a 264-bbl. flow the first 24 hours following. Former total depth of the hole was 4,342 feet but it was plugged back 32 feet to shut off bottom hole water before shooting. Oil showings were logged at 4,090-4,104 feet with an increase at 4,134 feet. It will probably be connected by production with Landreth Production Co. No. 1 Johnson in section 47, Block 43, Township 1n, 4 miles to the northwest, but not with the Addis pool 2 miles to the southwest.

Winkler Extension

The Humble Oil & Refining Co. again extended the Brown and Altman or Kermit area, farther to the west, and extended the Hendricks field to the east with the same well, which brings a closer link of the two areas. The company No. 4-B Walton, in section 47, Block 26, made 179 bbls. the first 24 hours after shooting with 300 quarts at 2,898-3,000 feet.

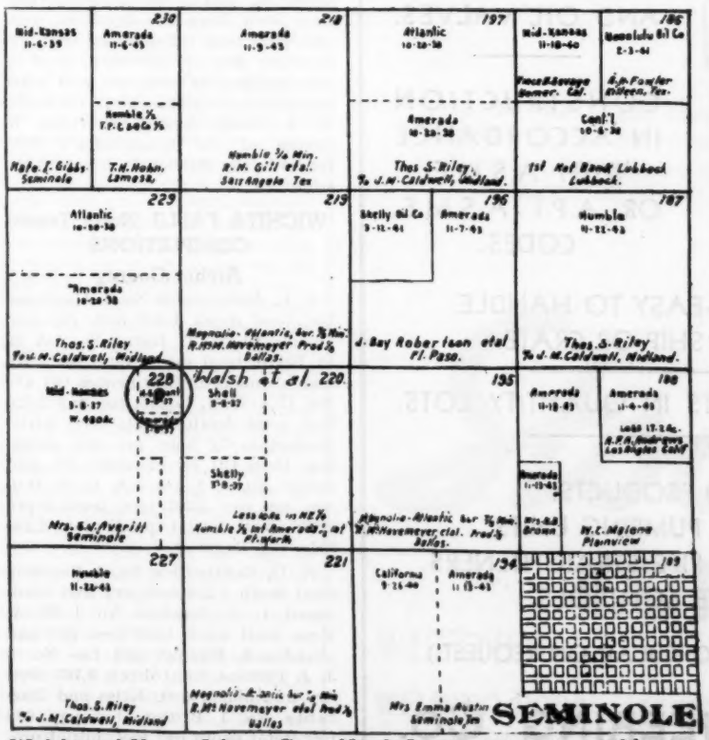
Gas in Gaines Wildcat

The wildcat test in northwest Gaines County being drilled by Wahlenmaier and others on the E. H. Jones ranch, section 414, Block G, C.C.S.D.&R.G.N.G. Survey, struck 50,000 feet of gas this week in drilling from 3,310 to 3,330 feet in red sand. It is now drilling ahead and because of this gas showing has entered the list of interesting wildcats drilling in the Permian Basin. It is located about 20 miles northwest of Walsh and Harry Adams Corp. No. 1 Averitt, located in section 228, Block G, W.T. R.R. Survey, which encountered five showings of gas and is still fishing on one string of tools lost when the last gas was struck at 3,132 feet.

Testing Schleicher Test

John M. Cooper and others No. 1 Bert Page, 9½ miles southeast of Eldorado in Schleicher County, was plugged back to 5,540 feet and was shut in for 12 hours. When gauged it tested 13,800,000 feet of gas with some oil, and a separator is being installed to find how much oil is being produced with the gas. Total depth was formerly 6,257 feet, but it was plugged back to 5,555 feet and then 15 feet farther this week.

The Railroad Commission of Texas has approved Mr. Cooper's proposal to charge a minimum rate of $3 per month to domestic users of natural gas from the well, other rates to be scaled upward, and when the completed rate schedule is filed with the commission he will conclude negotiations with the Eldorado city council for a franchise and will order pipe for a line to carry gas from the well to the city. A distribution system will also be installed in the city. This is the first production, oil or gas, for the county, and may lead to more interest being displayed in the area than has been shown heretofore.



Walsh and Harry Adams Corp. No. 1 Averitt, interesting wildcat in Gaines County, which logged five heavy showings of gas

(Courtesy of Standard Blue Print Map & Engineering Co., Fort Worth, Tex.)

Fisher Extension

Tide Water Oil Co. and others No. 2 Howard, located 800 feet southwest of the No. 1 discovery well of Merry Brothers, Perini and Tide Water Oil Co., in section 180, Block 2, H.&T.C. Survey, about 5 miles northeast of Rotan in Fisher County, topped the pay at 3,645 feet and is now underreaming the hole preparatory to setting casing. Total depth is 3,647 feet. It filled 400 feet with oil in four hours after topping the pay and drilling 2 feet, and promises the second well for the area, a test drilled to the southeast proving dry a short time ago, defining the field in that direction, and forcing drilling in other directions from the discovery, which came in last February for a 200-bbl. well, making some water.

Locations and Completions

Paul Teas, who was interested in the Fleetborn Oil Co. test, abandoned this week on the Allison ranch, in section 49, Block A, G.W.T.&P. Survey, on the east edge of Sutton County, has staked location on the J. B. Stewart ranch in section 2, Block DA, G.C.&S.F. Survey, in Edwards County, and has moved in a spudder. The Allison test was given up at 4,504 feet. Top of the Ellenberger lime was logged at 4,240 feet and the well had a good showing of oil, testing 10 gallons of oil from saturated sand logged from 3,383-93 feet, but it failed to make a commercial producer. Elevation is 2,316 feet.

The Cordova Union Land Co. and the Indian Territory Illuminating Oil Co. and Foster staked location for a test in section 3, Block AB, A. E. Baxley Survey, near the Ray-Cordova Union discovery made a couple of months ago, but completed last week. It is about 3½ miles southeast of the Hurdle production and 5½ miles southeast of McCamey, in Upton County.

Winkler Abandonment

Wahlenmaier and others abandoned their test on the Walton ranch, in section 3, Block 26, north of the Hendricks field and a mile northwest of the Sayre-Howe area. Total depth is 3,255 feet and elevation is 2,863 feet.

Nineteen tests were completed in the district this week, and locations were staked for 20 others.

Denton County Block

Alvin K. O'Pry has taken a 6,000-acre block east of Pilot Point in Denton County, on which he proposes to drill a 6,000-foot test, another deep test for a sector that has been attracting attention within the

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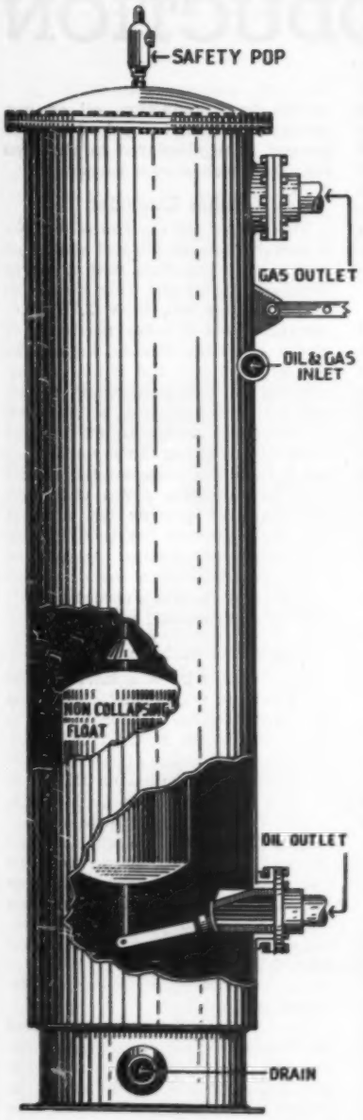

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past three or four months, or since Olsen Brothers Drilling Co. and others started their deep test northwest of Denison in Grayson County, which is drilling below 4,640 feet and which has had a couple of gas showings within the past 10 days.

Wichita Falls District

There were 31 locations staked for tests in the North Central Texas district this week with 30 wells completed, only 12 of which were producers.

Hamilton County

Walter H. Gant of Ardmore, Okla., is preparing to spud on a block of some 11,000 acres near the town of Blansit in Hamilton County. The test is to go to 4,000 feet and be located on Blansit lands in an area drilled several years ago by the Gladys Bell Oil Co. W. B. Tyler, superintendent for Gant will be in charge of the drilling.

The Texas-Seaboard Oil Co. has also taken a block in the county, in the Pottsville area, and will probably drill in the near future. The Lone Star Gas Co. has also been taking acreage in the county, which has been receiving much attention of late.

Panhandle District

Fifteen locations were staked in the Panhandle district and 14 wells were put on production with one outpost test in Wheeler County a failure. The latter, Ben G. Barnett's No. 1 Patterson, in section 89, Block 13, H.&G.N. Survey, an east offset to a good producer in the Osborne pool, east of Shamrock, was given up at 2,433 feet. Wells in this field are producing from Granite Wash around 2,100-foot level.

The Railroad Commission has field men making a water survey of the Panhandle field to ascertain, as fairly as possible, the amount and trend of water encroachment in the field, believed to be increasing. All wells operating under water exemptions have been given five-day tests, samples have been taken, along with exhaustive data as to depth, kind of pay, position on structure, and other material facts pertaining to the wells. K. I. Dunn, deputy supervisor in charge of the Commission's field forces in the district, is directing the work.

WICHITA FALLS (North Texas) COMPLETIONS

Archer County

C. L. Abercrombie No. 1 Abercrombie, total depth 1,355 feet, dry and abandoned. L. T. Burns No. 1-A B. D. Ikard, total depth 1,086 feet, dry and abandoned. Continental Oil Co. No. 17-A W. J. Logan, top pay 1,126 feet, total depth 1,142½ feet, initial production 72 bbls. per day pumping. Deep Oil Development Co. and others No. 8, Lease 4-A, L. F. Wilson, top pay 2,203 feet, total depth 2,228 feet, initial production 2,200 bbls. per day.

N. D. Goldsmith's No. 1 Beardon, total depth 1,225 feet, dry and abandoned. L. G. Hawkins No. 1 W. A. Keys, total depth 1,442 feet, dry and abandoned. Kimmel and Lee No. 3 J. J. Perkins, total depth 1,765 feet, dry and abandoned. Kriss and Buzzard's No. 1 Britton, top pay 638 feet, total depth 642 feet, initial production 15 bbls. per day. Perkins and Cullum No. 18 C. L. Abercrombie, top pay 996 feet, total depth 1,018 feet, initial production 25 bbls. per day. J. M. Seaberry and others No. 1 Mrs. M. Childs, total depth 728 feet, dry and abandoned.

Baylor County

Consolidated Oil Co. No. 1-W W. H. Portwood, total depth 1,501 feet, dry and abandoned.

Cooke County

Big Indian Oil & Gas Co. No. 1 J. S. Floyd, total depth 4,005 feet, dry and abandoned. Merrick Drilling Co. No. 16 A. Knabe, total depth 837 feet, dry and abandoned. Mudge Oil Co. No. 4 J. R. Johnson, top pay 1,105 feet, total depth 1,136 feet, initial production 60 bbls. per day. Newsom and others No. 1 J. R. Klement, total depth 1,550 feet, dry and abandoned.

Montague County

Benson Brothers and McIntyre No. 1-B Williams Estate, total depth 2,769 feet, dry and abandoned. Continental and Seitz and others No. 10 S. J. Hott, top pay 1,769 feet, total depth 2,017 feet, initial production 138 bbls. per day pumping.

Wichita County

C. B. Christie No. 3 W. L. Hodges, total depth 1,760 feet, dry and abandoned. King Royalty Co. and others No. 7-J Waggoner Estate, top pay 1,974 feet, total depth 1,982 feet, initial production 45 bbls. per day. S. H. Walton's No. 9 Gulf Tank Farm, total depth 870 feet, dry and abandoned.

Young County

P. C. Brashear No. 1 A. C. Casey, total depth 650 feet, dry and abandoned. David Johnson No. 4 E. E. Hall, top pay 670 feet, total depth 672 feet, initial production 75 bbls. per day. McDaniel and Page No. 1 O. S. Perkins, top pay 736 feet, total depth 739 feet, initial production 30 bbls. per day. W. E. Nunneley and others No. 1 C. M. Boyd, total depth 500 feet, dry and abandoned.

Petroleum Producers No. 14 Belknap, total depth 765 feet, dry and abandoned. E. C. Reed's No. 1-B G. W. Poole, total depth 597 feet, dry and abandoned. Underwood and Campbell No. 11-C R. Campbell, top pay 877 feet, total depth 898 feet, initial production 200 bbls. per day: No. 12-C R. Campbell, top pay 885 feet, total depth 900 feet, initial production 100 bbls. per day. White and Duncan's No. 1 Prideaux, total depth 802 feet, dry and abandoned. Wichita Production Co. No. 8 Keithe, top pay 715 feet, total depth 720 feet, initial production 67 bbls. per day.

PANHANDLE COMPLETIONS

Carson County

McGill and others No. 4 Cooper, top pay 3,014 feet, total depth 3,040 feet, shot, initial production 616 bbls. pumping.

Potter County

Canadian River Gas Co. No. 16-A Bivins, top pay 2,200 feet, total depth 2,578 feet, initial production 18,680,000 feet of gas.

Gray County

Bradshaw Oil & Gas Co. No. 10 Harrah, top pay 3,146 feet, total depth 3,218 feet, shot, initial production 360 bbls. pumping. Skelly Oil Co. No. 32 East Schaffer, top pay 3,225 feet, total depth 3,320 feet, shot, initial production 809 bbls. pumping. Taylor Oil Co. No. 3 Taylor, total

depth 2,885 feet, shot, initial production 1,590,000 feet gas. Texas Co. No. 9 Harrah, top pay 3,160 feet, total depth 3,252 feet, shot, initial production 418 bbls. pumping.

Hutchinson County

Gulf Production Co. No. 56 Dial, top pay 2,965 feet, total depth 3,085 feet, shot, initial production 250 bbls. pumping. International Petroleum Corp. No. 29 Lewis-Badger, top pay 2,910 feet, total depth 2,989 feet, shot, initial production 463 bbls. pumping. Phillips Petroleum Co. No. 1 Cottle, total depth 3,227 feet, plugged back to 2,813 feet, shot, initial production 13,363,000 feet gas. Texas Co. No. 7 Lewis, top pay 2,950 feet, total depth 3,037 feet, shot, initial production 474 bbls. pumping.

Moore County

Alma Oil Co. No. 2 Jones, top pay 3,005 feet, total depth 3,051 feet, initial production 48,163,000 feet gas. Anderson & Kerr No. 1-C McDowell, total depth 3,340 feet, plugged back to 3,196 feet, shot, initial production 47,235,000 feet gas. Phillips Petroleum Co. No. 1 Brumley, top pay 3,368 feet, total depth 3,372 feet, initial production 174 bbls.

Wheeler County

Ben C. Barnett No. 1 Patterson, dry and abandoned 2,433 feet. Texas Co. No. 7 Bush, top pay 2,425 feet, total depth 2,524 feet, initial production 2,176 bbls.

WEST TEXAS COMPLETIONS

Andrews County

Humble Oil & Refining Co. No. 5 Means, top pay 4,530 feet, total depth 4,545 feet, shot, initial production 612 bbls.

Crockett County

Adkins Brothers No. 1 Shannon, abandoned location.

Ector County

Sinclair Prairie Oil Co. No. 1 University, abandoned location. Stanolind Oil & Gas Co. No. 24 Cowden, top pay 4,214 feet, total depth 4,267 feet, shot, initial production 1,212 bbls. Gulf Production Co. No. 3 Goldsmith, top pay 3,892 feet, total depth 4,110 feet, initial production 1,594 bbls.

Howard County

W. E. Production Co. No. 2 Schrivner, top pay 2,275 feet, total depth 2,294 feet, acidized, initial production 960 bbls. Sinclair Prairie Oil Co. No. 21 Dodge, top pay 2,550 feet, total depth 2,771 feet, shot, initial production 1,052 bbls. California Co. No. 1 Foster, top pay 2,401 feet, total depth 2,730 feet, acidized and shot, initial production 280 bbls.

Upton County

Gulf Production Co. No. 4-E Sherk, top pay 2,315 feet, total depth 2,367 feet, shot and acidized, initial production 854 bbls. Texas Pacific Coal & Oil Co. No. 7 Claine, top pay 2,265 feet, total depth 2,363 feet, acidized, initial production 817 bbls.

McCulloch County

W. A. Sander No. 1 L. E. Smith, dry and abandoned 1,136 feet, top Ellenberger 1,129 feet. Located in C. M. Booth Survey.

Ward County

Richardson No. 1-A Johnson, top pay 2,962 feet, total depth 2,965 feet, plugged back to 2,550 feet, initial production 3 bbls. per day. Stanolind Oil & Gas Co. No. 1 Martin, top pay 2,440 feet, total depth 2,987 feet, initial production 6,100,000 feet of gas.

Sutton County

Fleetborn Oil Corp. No. 1 Allison, dry and abandoned 4,504 feet, top Ellenberger 4,240 feet; elevation 2,316 feet.

Jones County

N. H. Martin No. 3 Dorsey, top pay 2,148 feet, total depth 2,151 feet, initial production 82 bbls. Sheldon Brothers No. 1 Dillard, abandoned location.

Winkler County

Barnsdall Oil Co. No. 3-B Brown & Altman, top pay 3,116 feet, total depth 3,187 feet, shot, initial production 65 bbls. Atlantic Oil Producing Co. and others No. 1-J Hendrick, top pay 2,841 feet, total depth 3,020 feet, shot, initial production 254 bbls. Wahlenmaier and others No. 1 Walton, dry and abandoned, 3,255 feet, elevation 2,863 feet. Empire Gas & Fuel Co. No. 1 Daugherty, top pay 2,796 feet, total depth 3,006 feet, shot, initial production 500 bbls. Sayre Oil Co. No. 6-B Howe, top pay 2,807 feet, total depth 2,991 feet, shot, initial production 800 bbls. Gulf Production Co. No. 3 Keystone, top pay 3,287 feet, total depth 3,765 feet, shot, initial production 63 bbls. of oil and 45 bbls. of water.

Thrift Plan Announced by Jersey Standard

One of the first of the country's large industrial units to work out a new pension plan taking into consideration the social security act of the last congress, has announced terms under which its employes will be able to supplement federal old age payments. This is the Standard Oil Co. (New Jersey) with 50,000 employes in the United States, of whom it is expected 37,000 will elect to participate in the plan. On that basis, deposits in the fund by employes will approximate $5,000,000 a year.

A pioneer in the field of retirement pensions for employes, the company found that complications raised by payroll taxes under the government plan, depreciation of the dollar, decline in interest rates on invested capital and other factors rendered continuance of its former annuity and stock acquisition plans not feasible. Discontinuance of the latter was authorized by stockholders last June.

The new Thrift Plan, the company announced, permits employes to deposit from 3 to 13 per cent of their current earnings. On the first 3 per cent the company will match employe contributions dollar for dollar. On any amounts up to the next 10 per cent the company will deposit 50 cents for every dollar subscribed by employes. There may also be additional contributions from the company from time to time.

The fund thus built up may be used for a variety of purposes according to the individual desires of each employe. A certain minimum is required to be allocated for the purchase of an annuity. Beyond that employes may utilize their credits to obtain additional group annuities on retirement, single premium life or endowment insurance, Standard Oil Co. (New Jersey) stock, or payment of dues in approved mutual hospital or medical associations.

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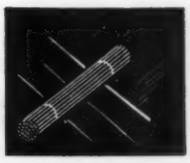

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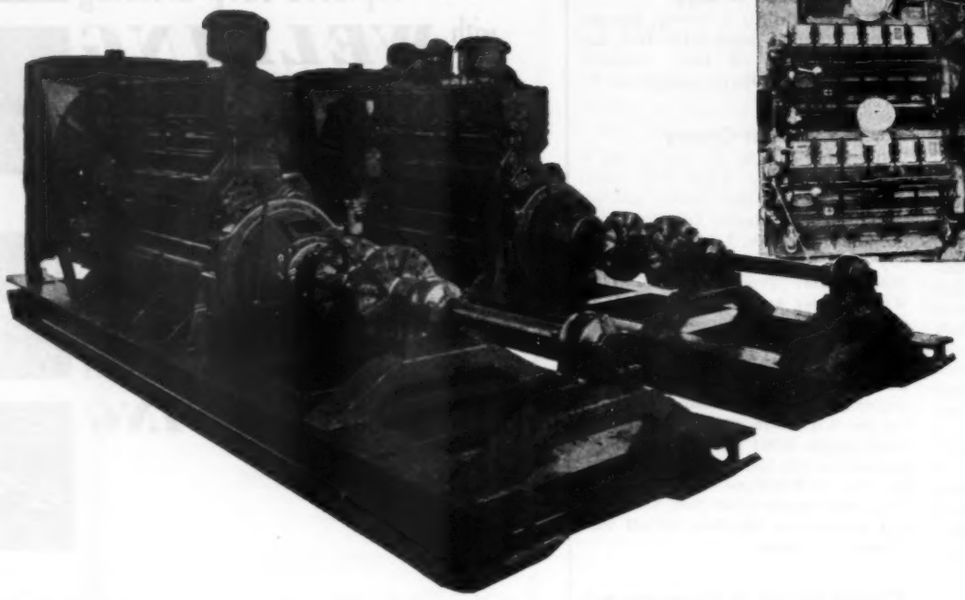

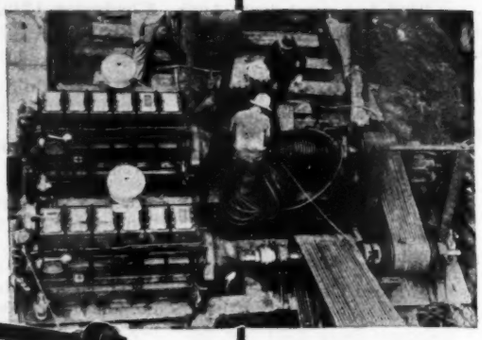

Noble Drilling Company's two 200 h. p. Cummins Diesels driving a rotary drilling rig

Drills, with rock bits, 2753 feet in 8 days and 7 hours

The Noble Drilling Company, using two 200 h. p. cold starting, Cummins Diesels, made this record recently in Hughes County, Oklahoma.

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Depth: 2753 feet by rotary drill, pipe heavy six-inch.
Hole: 11¾-inch, rock bits all the way—"tough going."
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Drilling time from surface pipe down, including running and cementing pipe: *8 days, 7 hours*

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DIESELS

East and East Central Texas

NEW PUMPING WELLS IN EAST TEXAS; WATER IS INCREASING

By L. E. BREDBERG

DALLAS, Tex., Dec. 23.—Locations in the East Texas district took a decided spurt this week, increasing to 79. This follows the Railroad Commission's order cutting back the per well allowable from 2.8 to 2.7 per cent of the hourly well potential in the field, issued during the week. Runs to refineries in the field dropped nearly 5,000 bbls. per day in the past week, with overproduction decreasing accordingly.

Reports from the field state that there are only 10 or 12 refineries in the field having tenders on products for shipping out of the state. From 24 to 32 refineries operate intermittently in the field each week, the greater part of them shipping their products within Texas. The average gasoline market in East Texas is around 11,000 bbls. per day, trucks carrying out the greater portion of this, or an estimated 8,100 bbls. daily.

The completion report this week showed more pumpers and swabbers appearing for the week than have appeared during any seven-day period in the history of the field. Twelve wells were completed on the pump, four were completed as swabbers, one on gas lift, one flowing by heads and one was junked and abandoned. All of the pumpers were located in Rusk County, with two swabbers, only, being recorded in Gregg County.

More Water Showing

Reports from the field state that more water is showing up in wells on the west side, and the next water report will no doubt show more wells and a greater amount of salt water production than has been reported heretofore. Salt water production, like "dead" wells, is a difficult subject on which to obtain even a fair amount of facts and date. Operators are some what hesitant in giving out definite information on the amount of water their wells and leases are making and the men compiling this data have an extremely difficult time in working up a fairly accurate report on the field.

The daily allowable for the field is expected to be brought down from 437,085 bbls. as of December 17 to an estimated 428,000 bbls. under the new order issued by the Railroad Commission. The average bottom-hole pressure of the field, computed from 34 tests on key wells in December, was reported by the commission as 1,206.2 pounds, showing a 3.8-pound drop since November 12 according to V. E. Cottingham, chief engineer for the commission.

The allowable of the field was cut above the signature of two of the railroad commissioners, the third, Lon Smith, would not sign the order. If a consequent price increase is not forthcoming for this field, and other fields in the state, there may be a flareback, with all fields being given an increased allowable, especially East Texas.

East Central Texas

Five locations were staked for wildcat tests in the East Central Texas district this week, and only one wildcat test abandoned. Cherokee County reported this failure. One location was staked in the Camp Hill pool of east Anderson County, Burke Brothers making it on their S. G. Moore lease, a south offset to Gulf Production Co. No. 1 Maddox, a producer, in the J. C. Rosson Survey. This is the first test to be drilled by an independent operator in the pool on acreage appearing sure of making a producer. The Sun Oil Co. staked location for two tests in the pool last week, both in the Rosson Survey.

Henderson Wildcat

Sparks and others staked location for No. 1 P. E. Perry in the A. York Survey, Henderson County, 500 feet due west of H. B. Ashburn dry hole 5 miles south of Brownsboro.

Limestone County Test

Money Oil Co. has a location in the old Nigger Creek field on a lease held by Moss and Urschel. It is on the Billie Rosson estate, Block 4, in the Pedro Varela Survey, Limestone County, in a field which has not been producing for the past several years.

Navarro Wildcat

Peyton Brothers of Corsicana have staked location 2 miles west of Currie for a test on the J. F. Rushing lands in the H. Ford Survey, in Navarro County.

Rusk County Test

McCallum and others have a derrick up on the E. C. Gary lands in the John Piburn lands 5 miles south of Henderson in Rusk County. This location is east of the south end of the East Texas field and is seeking production from the same horizon.

Wood County

The Gulf Production Co. is moving in material for a test on the C. D. McCollum tract in the Joseph Simpkins Survey, one-half mile south of Alba in southwest Wood County. E. DeGolyer, Atlatl Royalty Co. and others assembled the original block, which is located on a geophysical structure.

Long Lake Outpost

James Patton and O. Phillips are preparing to spud in a test on the J. W. Foche lands in the James Madden Survey, about 3,000 feet northwest of the nearest production in the Long Lake field, in southwest Anderson County. This will be an important test, as it will either extend the producing area by either making a gas or oil producer, or both, or prove a defining dry hole for the field.

Tide Water Oil Co. and Texas Seaboard Oil Co.'s jointly owned test, No. 3 Shaw and Cern, in the D. Parker Survey, made 130 bbls. of oil in 24 hours through a one-eighth inch choke on tubing. Top of the oil sand was logged at 5,340 feet and total depth of the hole was only 7 feet in the sand. Elevation is 301 feet.

Leasing and Drilling

The Texas Co. has purchased considerable acreage in the Blackfoot area and east and around Springfield and Bradford in Anderson County. No location has been reported, but presumptions are that some one is planning to drill in the area, if not The Texas Co.

Grover Hart has purchased a 6,000-acre block centering in the J. M. Mitchell Survey in northwest corner of Camp County, taking it on results of showings made in the old McDonald Brothers No. 1 Tillery, previously drilled.

A lease play starting in the H. L. Thompson Survey 2 miles west of Thornton in Limestone County and running south and west and extending over into Falls County, has resulted in an estimated 10,000 acres being taken in the sector, probably for a Trinity sand test. Tide Water Oil Co. and Humble Oil & Refining Co. have been doing the brunt of the buying.

Burnham and Johnson have taken over a block of some 30,000 acres north and northwest of Franklin in Robertson County and a location is expected to be announced for a test on the block after the first of the year.

Lee Dodwell of Dallas has taken 1,000 acres around the Atlatl Royalty Co.'s dry hole in Wood County, and a second test may be put down in this area.

Some 4,000 acres northwest of Kosse and running over into Limestone County, have been leased in Falls County, and a 4,500-foot test is reported planned for the block.

The Overtex Refining Co. is blocking acreage in the southwestern part of Hopkins County for a test. About 1,000 acres have been taken so far, located in the A. Carroll Survey. A test is to be drilled on the block as a result of the showings made in the Hale No. 1 Hall which had showings in the Nacatosh or Blossom sand.

McElreath and Suggett have taken between 1,200 and 1,500 acres southeast of Commerce and 12 miles northeast of Greenville in Hunt County, located in the Ragsdale, Wright, Dale, Tidwell and adjacent surveys.

The district is being shown more attention than it has for the past several months, no doubt due to the striking of production in the Trinity sand in the Cayuga field in northwest Anderson County.
west Anderson County and the producing of oil in the Rodessa field across the northeast line of the state in Louisiana, the production in that field threatening extension over into Cass County on the Texas side. If a test now showing some oil on the east line of Cass County, comes through as a Trinity sand producer, leasing in the entire East Texas district will be immediately stimulated. The Cass County test of American Liberty Oil Co. will be closely watched for developments. If it proves a dry hole it will have negative effects on leasing, especially for the deeper production in the district.

G. L. Dowlearn, independent producer of Joinerville, Tex., on "Colonel". Mr. Dowlearn operates one of the largest trucking and swabbing companies in East Texas where he has been since opening of the field.

EAST TEXAS COMPLETIONS

Completions in East Texas with their sand records and initial production were as follows:

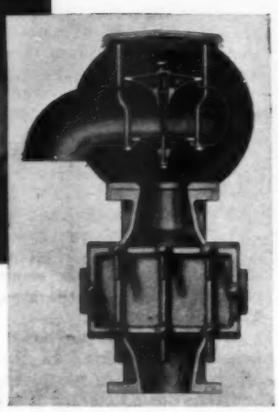
Gregg County

Arkansas Fuel No. 10 V. Calvin, top sand 3,508 feet, total depth 3,535 feet, 28 bbls. in 15 minutes, three-eighths inch choke; No. 9-B S. G. Smith, top sand 3,528-43 feet, total depth 3,545 feet, 21 bbls. in 15 minutes; No. 8 J. Snoddy, top sand 3,562-86 feet, total depth 3,587 feet, 17 bbls. in 15 minutes. Atlantic No. 8 S. Barton, top sand 3,642 feet, total depth 3,665 feet, 103 bbls. per hour; No. 7 J. J. Repond, top sand 3,669 feet, total depth 3,690 feet, 101 bbls. per hour.

Humble Oil & Refining No. 8-A J. H. Sheppard, top sand 3,655 feet, total depth 3,663 feet, 71 bbls. per hour; No. 2 W. C. Shoultz, top sand 3,451-62 feet, total depth 3,512 feet, 20 bbls. in two hours swabbing. T. D. Humphrey No. 3 T. W. Dunbar, top

REMOVABLE, TELESCOPIC FLAME ARRESTER BANKS ARE EXCLUSIVE WITH "VAREC" *TANK VENT UNITS*

COVERED BY PATENT NO. 1918337 and Patents Pending



VAREC TANK EQUIPMENT

The "Varec" Conservation Vent Unit incorporates a flame arrester bank that opens like a book. For inspection, simply remove cover plate and pull out the bank, which may then be expanded to a predetermined stop. This feature eliminates the necessity of steam jetting or taking the bank apart to clean plates. Scores of users testify to the simplicity, positive action and time saving advantages of maintaining the "Varec" flame arrester bank.

The "Varec" Vent Unit itself is light in weight, built of rigid pure aluminum and duralumin throughout. It is fully stream-lined for maximum flow capacity and its materials assure non-corrosion.

"Varec" 6" aluminum tank vent units are the only ones listed by the Underwriters' Laboratory. "Varec" entrainment separator flame arrester is the only one listed by the Underwriters' for installation in the enclosed area between vent valve and tank, the only logical location.

All "Varec" construction and features are fully covered by patents and patents pending. Write for full information and prices on the new "Varec" Conservation Vent Unit, available in standard sizes from 2" to 10".

Flame Arresters should be installed EXACTLY as they are listed by the Underwriters' Laboratories - see pages 16 and 17, Underwriters' Laboratories July 1934 List.

Varec Features: Stream-lined for maximum flow. Hyperbolic valves and seats control "blow-down" and afford greater gas conservation. Non-chattering valves and removable seats. Aluminum, duralumin, non-corrosive construction. Manufactured by an organization of practical, progessive engineers with years of experience in the petroleum field.

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CLEVELAND, OHIO, 1601 St. Clair St., Tomlinson-MacLachlan Co.
TOLEDO, OHIO, 1316 Adams St., O. F. Mason
TORONTO, ONTARIO, 610 Federal Bldg., J. F. Comer
MONTREAL, QUEBEC, University Tower Bldg., Peacock Brothers, Ltd.
MARACAIBO, VENEZUELA, Apartado 331 C. C. McDermond
BRUSSELS, BELGIUM, 9 Rue du Moniteur, Emeric Kroch.

VAREC VENT UNITS

first sand 3,582-85 feet, second sand 3,607-10 feet, total depth 3,623 feet, 30 bbls. in one and one-half hours swabbing. Magnolia Petroleum Co. No. 29 L. J. Everett, top sand 3,609-10 feet, total depth 3,610 feet, 140 bbls. per hour. Stanolind Oil & Gas No. 14 P. Hoplins, top sand 3,480 feet, total depth 3,553 feet, 16 bbls. in 15 minutes.

Stewart Oil Co. No. 3 F. K. Lathrop, top sand 3,613 feet, total depth 3,658 feet, 20 bbls. per hour. Sun Oil Co. No. 11 E. C. Shultz, top sand 3,603 feet, total depth 3,661 feet, 65 bbls. per hour. Superior Oil Co. No. 18-A H. Prichard, top sand 3,522 feet, total depth 3,559 feet, 80 bbls. in 30 minutes. Tide Water Oil Co. No. 17 A. Davis, top sand 3,554-94 feet, total depth 3,596 feet, 19 bbls. in 10 minutes; No. 34 Lake Davernia, top sand 3,500 feet, total depth 3,540 feet, 15 bbls. in 10 minutes. Grace Oil Co. No. 2 M. Barton, top sand 3,506 feet, total depth 3,530 feet, 40 bbls. per hour. Hunter-Rowe No. 5 C. L. Still, top sand 3,536 feet, total depth 3,547 feet, 30 bbls.. Johnston-Owens No. 10-B M. T. Cole, top sand 3,500 feet, total depth 3,505 feet, 25 bbls. in 15 minutes. McMillan-Golston No. 9 Strong, top sand 3,665 feet, total depth 3,669 feet, 30 bbls. in 15 minutes.

J. B. Nantz No. 1 C. M. E. Cemetery, location abandoned. Shell Petroleum No. 15 P. M. Bates, top sand 3,551 feet, total depth 3,596 feet, 40 bbls. in 30 minutes. Sun Oil Co. No. 12 C. Brown, top sand 3,570 feet, total depth 3,605 feet, 53 bbls. per hour. Tide Water Oil Co. No. 13 Strong, top sand 3,606 feet, total depth 3,616 feet, 8 bbls. in 10 minutes.

Rusk County

Humble Oil & Refining No. 5 D. Roberson, top sand 3,636-38 feet, total depth 3,706 feet, pumping 7 bbls. per hour. Luling Oil & Gas No. 5-B Brightwell, top sand 3,606 feet, total depth 3,630 feet, 62 bbls. in 30 minutes. Wardell Oil Co. No. 2 I.&G.N.R.R., total depth 3,680 feet, dry and abandoned, junked. Jack Apple No. 4 Kangerga, top sand 3,560 feet, total depth 3,700 feet, pumping 20 bbls. per hour. Barbare-Seip No. 4 Lambert, top sand 3,523 feet, total depth 3,568 feet, swabbed 75 bbls. per day.

Leo Bell Oil Co. No. 3 I. W. Wooley, top sand 3,616 feet, top Georgetown 3,723 feet, total depth 3,724 feet, pumping 20 bbls. per hour. F. W. Fisher No. 13-B Eaton, top sand 3,732 feet, total depth 3,775 feet, 75 bbls. per hour. Wood-McIntyre No. 1 Frederick, top sand 3,562 feet, total depth 3,612 feet, pumping 45 bbls. per day. Great States Oil Co. No. 3 Herring, top sand 3,615 feet, total depth 3,632 feet, pumping 50 bbls. per day.

Hammond Oil Co. No. 3 Holt, top sand 3,520 feet, oil sand 3,538-88 feet, total depth 3,588 feet, pumping 16 bbls. in two hours. Hart-Prior No. 3 Cooper, top sand 3,540 feet, total depth 3,616 feet, pumping 40 bbls. per day. Howell-Hawkins No. 6 Propes, top sand 3,562 feet, total depth 3,588 feet, pumping 12 bbls. per hour; No. 7 Propes, top sand 3,560 feet, total depth 3,590 feet, pumping 12 bbls. per hour; No. 5 Propes, top sand 3,560 feet, total depth 3,590 feet, pumping 10 bbls. per hour. Humble Oil & Refining No. 49 W. L. Price, top sand 3,706-24 feet, total depth 3,782 feet, 40 bbls. per hour, 1-11/16-inch choke; No. 16-B H. White, top sand 3,663 feet, total depth 3,730 feet, 53 bbls. per hour on gas lift.

Mabee Consolidated No. 5-B Maxwell, top sand 3,558-60 feet, second sand 3,620-29 feet, total depth 3,659 feet, 20 bbls. per hour, 2-inch tubing. Magnolia Petroleum Co. No. 3 W. B. Kee, top sand 3,786-86½ feet, total depth 3,786½ feet, 15 bbls. in 15 minutes. Marathon Oil Co. No. 11 Mills, top sand 3,735 feet, total depth 3,761 feet, swabbing 20 bbls. per hour. Meco Production Co. No. 3-B M. Johnson, top sand 3,775 feet, total depth 3,779 feet, 22 bbls. in 15 minutes. Petroleum Marketing Co. No. 5 Deason, top sand 3,659 feet, total depth 3,690 feet, 20 bbls. per hour. J. B. Ray No. 11 Wilson, top sand 3,626 feet, total depth 3,640 feet, 80 bbls. per hour, 2-inch tubing. Retsal Drilling Co. No. 2 Lambert, top sand 3,530 feet, total depth 3,608 feet, pumping 50 bbls. per day. Sneed and others No. 2 Ed Rollins, top sand 3,670 feet, total depth 3,732 feet, plugged back to 3,687 feet, 35 bbls. per hour, 2-inch tubing.

Sun Oil Co. No. 19 Hendon, top sand 3,582 feet, total depth 3,584 feet, 20 bbls. per hour, 2-inch tubing; No. 20 Hendon, top sand 3,544 feet, total depth 3,585 feet, pumping 8 bbls. per hour; No. 14 A. Lee, top sand 3,629 feet, total depth 3,630 feet, 45 bbls. per hour, 2-inch tubing. Texas Co. No. 4 G. G. Turner, top sand 3,590 feet, total depth 3,681 feet, 20 bbls. per hour by heads. Texas Trading Co. No. 3 Deason, top sand 3,657 feet, total depth 3,710 feet, 30 bbls. per hour. Clint Wood No. 6 Irwin, top sand 3,804 feet, total depth 3,805 feet, 65 bbls. per hour.

Smith County

Sun Oil Co. No. 2 J. P. Seale, top sand 3,723 feet, total depth 3,727 feet, 60 bbls. per hour, 2-inch tubing. R. E. Thompson, receiver No. 11 W. R. Wolford, top sand 3,730 feet, total depth 3,735 feet, 30 bbls. in 40 minutes, 2-inch tubing.

Upshur County

Arkansas Drilling Co. No. 1 A. Callahan, top sand 3,675-83 feet, total depth 3,685 feet, 40 bbls. in 30 minutes. Eastern Texas Petroleum No. 22 Dunbar, top sand 3,615 feet, total depth 3,634 feet, 20 bbls. in 25 minutes. Gulf Production Co. No. 7 Ray, top sand 3,581 feet, total depth 3,587 feet, 7½ bbls. per hour through casing. Independent Supply Co. No. 2 C. T. Shelton, top sand 3,722 feet, total depth 3,731 feet, 40 bbls. in 45 minutes, 1-inch choke (formerly T. P. Looney No. 1 C. T. Shelton). Lyons-Wadley-Neeley No. 1-B W. O'Byrne, top sand 3,745 feet, total depth 3,770 feet, 35 bbls. in 30 minutes, 2-inch tubing. Sklar Oil Co. No. 4 B. F. Phillips, top sand 3,620 feet, total depth 3,632 feet, 30 bbls. per hour, 1-inch choke. Southland Drilling Co. No. 16 O'Byrne, top sand 3,680 feet, total depth 3,692 feet, 45 bbls. per hour. Texas Co. No. 7 Culpepper, top sand 3,758 feet, total depth 3,759 feet, 24 bbls. per hour, 2-inch tubing.

Anderson—Long Lake

Tide Water-Seaboard No. 3 Shaw & Cern, top first sand 5,328 feet, top oil sand 5,340 feet, total depth 5,347 feet, 130 bbls. in 24 hours, one-eighth inch choke, tubing pressure 770 pounds, casing pressure 1,025 pounds, elevation 301 feet.

Cherokee County Wildcat

Rowe-Hynes and others No. 1 Walker, total depth 5,006 feet, dry and abandoned, elevation 559 ft.

Rocky Mountain Area

TWO BIG NATURAL FLOWING WELLS IN LEA COUNTY POOLS

By
T. R. INGRAM

DENVER, Colo., Dec. 23.—Wildcatting in Colorado has taken a sudden spurt with rotary equipment moving in for a test in Baca County; the Hills dome oil lease contracting for the completion of its operation in Adams County; the Ohio Oil Co. making a location on the Bell Rock structure and the California Co. rigging up for its Round Butte test.

Amerada Petroleum Corp. placed on record leases on 15,000 acres in Laramie County, Wyoming. Superior-Wyoming Oil Co. completed a 10-bbl. well in the LaBarge field; Ohio Oil Co. No. 7 Lamb, in the Lance Creek field, flowed 3,429 bbls. the first 24 hours; and Osage had one dry hole.

There were no completions in Montana. Two locations were made in Cut Bank and one in Kevin-Sunburst.

Continental Oil Co. abandoned its wildcat in Sandoval County, New Mexico.

The Hobbs pool in Lea County, New Mexico, came through with another big initial producer, Phillips Petroleum Co. No. 1 Land Office, in section 19-19-37, starting at 3,408 bbls. of oil, natural flow, through tubing and 1,250,000 feet of gas the first 24 hours. Shell Petroleum Corp. got a 2,232-bbl. initial producer in the same pool. Skelly Oil Co. got a great well in the Eunice pool starting at 4,975 bbls. a day through tubing, natural flow, and accompanied by 3,000,000 feet of gas. These were the largest of a number of wells completed in Lea County.

Rocky Mountain Runs

Production estimates for the week ended December 21, 1935, follow:

WYOMING

	Bbls.
Salt Creek	16,980
Big Muddy	1,550
Byron	1,850
Dallas Derby	660
Elk Basin	690
Garland	810
Grass Creek	2,290
Hamilton Dome	1,640
Hudson	250
LaBarge	1,290
Lance Creek	2,720
Lost Soldier	1,300
Oregon Basin	4,020
Osage	660
Rock River	1,820
South Casper	400
Other fields	900
Total Wyoming	39,730

MONTANA

Buckley-Border	140
Cat Creek	740
Cut Bank	7,200
Dry Creek	60
Kevin-Sunburst	3,720
Lake Basin	50
Pondera	1,100
Total Montana	13,010

NEW MEXICO

Artesia	630
Cooper	8,970
Eunice	10,500
Hobbs	28,050
Hogback	200
Hospah	shut in
Jal	3,670
Lea	1,160
Maljamar	1,550
Monument	1,640
Rattlesnake	890
Table Mesa	90
Total New Mexico	57,350
Total Rocky Mountain region	114,220

COLORADO

Florence	160
Fort Collins and Wellington	400
Iles Dome	2,820
Moffat	410
Orchard	70
Rangely	70
Tow Creek	200
Total Colorado	4,130

SOUTHEASTERN NEW MEXICO

Eunice Area

Eight new operations were started in the busy Eunice field in Lea County in the past week, all of which are reported in the drilling list below.

Devonian Oil Co. completed No. 1 State Heasley, C SE SW section 5-21-36. Pay was found at 3,775-3,882 feet and the well flowed 600 bbls. in 24 hours through three-quarter inch choke with 40,000 feet of gas. The flow was natural.

Skelly Oil Co. completed No. 5 State B, C SW NE section 16-21-36, making a natural flow of 4,976 bbls. in 24 hours through tubing, with 3,000,000 feet of gas. Pay was found at 3,800-3,900 feet.

A number of wells were showing oil as the accompanying drilling list will show, but were not yet completed.

Gypsy Oil Co. No. 3 Arnott-Ramsay C, C NW SW sec. 21-21-36.
Drlg. 1,500 ft.

Continental Oil Co. No. 7-C-20 State, C NW SW sec. 20-21-36.
Set 5½-in. casing at 3,850 ft.

General Crude Oil Co. No. 1 State, C NW SW sec. 32-21-36.
T.D. 3,974 ft.; will acidize; shot, brought no results.

Penrose & Rowan No. 1 Carry, C NW SW sec. 22-22-37.
T.D. 3,555 ft.; 1,500 ft. of oil in hole in 6 hrs. Waiting for proration test.

Continental Oil Co. No. 4-B-8 Meyer, C NW NW sec. 8-21-36.
T.D. 3,885 ft.; acidized; flowed 30 bbls. per hr. with 4,090,000 ft. of gas per day.

Getty Oil Co. No. 1 State B, C NE NE sec. 16-21-36.
Drlg. 2,976 ft.

Continental Oil Co. No. 5-A-17 Meyer, C SE SW sec. 17-21-36.
T.D. 4,191 ft.; flowing 2 bbls. of fluid per hr., 50 per cent water.

Continental Oil Co. No. 3-A-30 Lockhart, C NE NW NE sec. 30-21-36.
T.D. 4,022 ft.; flowed 150 bbls. in 24 hrs., 9 per cent water, on gas lift. Will shoot.

Texas Co. No. 1 J. M. Dean, C SE SW sec. 28-22-36.
Drlg. 3,512 ft.

Continental Oil Co. No. 7-C-20 State, C NE SW sec. 20-21-36.
Set 5½-in. casing at 3,850 ft.

Gypsy Oil Co. No. 2 Orcutt, C SW SW sec. 5-21-36.
Drlg. 3,102 ft.

Humble O. & R. Co. No. 2 Adkins, C SW SW sec. 10-21-36.
Drlg. 303 ft.

Empire Gas & Fuel Co. No. 3 State C, C NE SW sec. 16-21-36.
Drlg. 3,729 ft.

Continental Oil Co. No. 8-C-20 State, C NW SW sec. 20-21-36.
Drlg. 3,070 ft.

Gypsy Oil Co. No. 2 Arnott Ramsey, C NW NW sec. 21-21-36.
Drlg. 3,764 ft.

Gypsy Oil Co. No. 2 North Bell-State, C SE NE sec. 6-21-36.
Drlg. 1,690 ft.

Atlantic Oil Prod. Co. No. 4 State-H, C NE NE sec. 5-21-36.
Drlg. 3,800 ft.

Gypsy Oil Co. No. 7 Bell-Ramsay-State, C SW NW sec. 4-21-36.
Set 9⅝-in. casing at 1,300 ft.

Tide Water Oil Co. No. 1 State, C NW SE sec. 16-21-36.
Cellar and pits.

Empire Gas & Fuel Co. No. 1 S. E. Felton, C NE NW sec. 28-21-36.
Drlg. 1,030 ft.

Amerada Pet. Corp. No. 2 Houston, C NE NE sec. 7-21-36.
Location.

Shell Pet. Corp. and Devonian Oil Co. No. 4 State, C NE NE sec. 20-21-36.
Ran 12½-in. casing at 251 ft.

Humble Oil & Ref. Co. No. 7 State B, C NE SE sec. 29-21-36.
Building rig.

Gypsy Oil Co. No. 1 A. L. Christmas, C SE SE sec. 27-22-36.
Moving in material.

Empire Gas & Fuel Co. No. 3 State D, C NE NE sec. 32-21-36.
Cellar and pits.

Atlantic Oil Prod. Co. No. 3 State H, C NW NE sec. 5-21-36.
Rigging up rotary.

Devonian Oil Co. No. 2 State-Heasley, C NW SE sec. 5-21-36.
Cellar and pits.

Humble Oil & Ref. Co. No. 3 Adkins, C NE SW sec. 10-21-36.
Cellar and pits.

Getty Oil Co. No. 1 State B, C NE NE sec. 16-21-36.
Cellar and pits.

Gypsy Oil Co. No. 1 Janda B, C NW SE sec. 32-21-36.
Location.

Harry Leonard et al No. 1 Hardy, C SE NE sec. 29-21-37.
Rigging up.

Ohio Oil Co. No. 1 State Maxwell, C NE NW sec. 16-22-36.
Deepening from 3,850 ft.; set 7-in. casing at 3,709 ft. and drilling.

Ohio Oil Co. No. 1 State McDonald, C SE SE sec. 16-22-36.
Cellar and pits.

Hobbs Area

Two completions were recorded in the Hobbs pool, Lea County. Shell Petroleum Corp. No. 3 Rice, 1,650 feet from south and 990 feet from east lines of SE quarter section 13-18-37, was acidized with 18,000 gallons and later flowed 2,232 bbls. of oil and 6,900,000 feet of gas at 4,044-88 feet, total depth.

Phillips Petroleum Co. No. 1 Land Office, C NE SW section 19-19-37, flowed 3,408 bbls. of oil and 1,250,000 feet of gas naturally from pay at 3,850-3,990 feet.

Gypsy Oil Co. No. 1 Steve Taylor, C SE NE sec. 24-18-38 (wildcat).
T.D. 4,883 ft. Swabbed all water. Plugged back to 4,760 ft.; testing.

Tide Water Oil Co. No. 1 State, 2,310 ft. from N, 330 ft. from E lines, sec. 14-18-37.
T.D. 4,368 ft.; plugged back and perforated pipe at 3,345-65 ft.; swabbed 19 bbls. in 24 hrs.

Shell Pet. Corp. No. 1 State E, C W half SE SE sec. 14-18-37.
Set 7-in. casing at 4,028 ft.

Texas Co. No. 1 Mattern, C NW SW sec. 20-19-37.
T.D. 3,826 ft. with drill pipe stuck.

Barnsdall Oil Co. No. 2 Cooper, C SW SW sec. 7-20-37.
Drlg. 3,843 ft.

Texas Co. No. 1 State C, C SE SW sec. 19-19-37.
Cellar and pits.

Monument Area

Skelly Oil Co. No. 1 State-Monument, C SE SE sec. 13-19-36.
Swabbed and flowed 20 bbls. per hour after acidizing; T.D. 4,055 ft.; will deepen.

Shell Petroleum Corp. No. 1 State C, C NE NE sec. 24-19-36.
Drlg. 4,059 ft.

Amerada Pet. Corp. No. 1 State H, C SW SE sec. 1-20-36.
Set 7-in. casing at 3,785 ft.

Skelly Oil Co. No. 1 State D, C SE SE sec. 1-20-36.
T.D. 3,160 ft.; milling on junk.

Superior Oil Co. No. 3 State, C SE NE sec. 2-20-36.
T.D. 3,937 ft.; flowed 75 bbls. per hr. after first acid; reacidized with 4,000 gals.

Amerada Pet. Corp. No. 1 Weir, C SW SW sec. 35-19-36.
Drlg. 1,475 ft.

Republic Production Co. No. 2 Selby & Mavesty, C NE SW sec. 35-19-36.
Set 9⅝-in. casing at 2,425 ft.

Amerada Pet. Corp. No. 2 State D, C SW NW sec. 1-20-36.
Set 9⅝-in. casing at 2,423 ft.

Texas Co. No. 2 State E, C NW SW sec. 1-20-36.
Drlg. 620 ft.

Amerada Pet. Corp. No. 1 State J, C SE SE sec. 2-20-36.
Drlg. 1,720 ft.

Texas Co. No. 3 State E, C NW SW sec. 1-20-36.
Set 10¾-in. casing at 1,006 ft.

Amerada Pet. Corp. No. 1 State I, C NE NW sec. 2-20-36.
Drlg. 3,044 ft.

Gypsy Oil Co. No. 1 Graham-State, C NW SE sec. 24-19-36.
Cellar and pits.

Sun Oil Co. No. 4 Weir, C NW SE sec. 35-19-36.
Cellar and pits.

Cooper Area

Skelly Oil Co. No. 1 Harrison, C NW SW sec. 5-23-37.
T.D. 3,794 ft.; plugged back to 3,759 ft.; tubed. Swabbed 88 bbls. in 24 hrs. with some water; will acidize.

Gypsy Oil Co. No. 1 Lemunion, C NE NE sec. 28-23-37.
Shut down at 539 ft.

Gypsy Oil Co. No. 2 Cooper, C NW SE sec. 14-24-36.
T.D. 3,698 ft., sulfur water; plugged back to 3,694 ft.

Gypsy Oil Co. No. 2 Cooper, C NW SE sec. 23-24-36.
T.D. 3,616 ft.; showed 1,500,000 ft. of gas; shut in.

Humble Oil & Ref. Co. No. 1 Hunter, C NW NW sec. 24-24-36.
T.D. 3,630 ft.; acidized; flowed 12 bbls. per hr.; set 7-in. casing.

Continental Oil Co. No. 2-A-15 Vaughan, 1,980 ft. E and 660 ft. S lines sec. 15-24-36.
Location.

Skelly Oil Co. No. 1 Simms, C SW NE sec. 4-23-37.
Set 13-in. casing at 252 ft.

Jal Area

Byrd-Frost, Inc. No. 3 Wells A, 1,980 ft. from N and 660 ft. from W lines of sec. 12-25-36.
T.D. 3,323 ft.; set 7-in. casing; showed oil and gas on drill stem test at 3,294-3,323 ft.

Harry Leonard No. 1-B Justice, SW NW NW sec. 20-25-37.
T.D. 3,501 ft.; plugged back to 2,970 ft. and shot with 28 quarts. Cleaning out.

Texas Co. No. 1 Cagle B, C NW SW sec. 15-26-37.
Drlg. 2,268 ft.

Stanolind Oil & Gas Co. No. 11-B Farnsworth, C NE SW sec. 7-26-37.
Location.

J. G. Hammond, Inc., No. 2 Sholes, NW ¼ sec. 13-25-36, deepened from 3,258 ft. to 3,357 ft., flowing 18 bbls. of oil and 4,500 bbls. of water per day; testing.

Maljamar Area

Maljamar Oil & Gas Co. No. 5 Baish, C SW NE sec. 21-17-32.
Pay at 2,362-68 ft.; flowed naturally 90 bbls. in 24 hrs. through tubing; completed.

Eddy County

R. D. Compton No. 7 Brainard, 200 ft. from S and 1,060 ft. from E lines of sec. 5-18-27.
T.D. 1,005 ft., in sand; fishing for bit.

Emperor Oil Co. No. 2 Puckett, C W½ NW NE sec. 24-17-31.
T.D. 3,498 ft.; 1,700 ft. of oil in hole; fishing for bailer.

Barnsdall Oil Co. No. 3 Dodd, C SE NE sec. 22-17-29.
Drlg. at 1,015 ft.

Fred Brainerd No. 1 Featherstone, CEL SW SW sec. 36-16s-28e.
T.D. 1,580 ft.; shut down.

Etz Bros. No. 1 State, C SE SW sec. 16-17s-30e.
T.D. 3,320 ft. in lime, estimated at 150 bbls. a day and 1,000,000 ft. of gas per day. Will acidize.

Red Lake Oil Co. No. 5 State, NW NW NE sec. 27-17s-28e.
Pay at 1,903-38 ft.; shot with 60 quarts.

for CLEAN, PLASTIC DRILLING FLUID

McNEELY VIBRATING MUD SCREEN AT HOBBS, NEW MEXICO

McNEELY
VIBRATING MUD SCREEN
...the efficient, economical shaker for removing sand and shale from drilling mud

Removal of abrasive material from drilling muds will prolong the life of pump, valve and swivel parts and afford protection against stuck drill pipe and caving hole through constant maintenance of a clean, plastic drilling fluid.

Operators the world over use and recommend the McNeely Vibrating Mud Screen for its efficiency and economy in removing sand and shale from drilling mud. It is built for long life and uninterrupted operation under most severe conditions. The curved surface of the all-steel, welded vibrating frame is an *exclusive* feature that accelerates the elimination of cuttings, preventing their piling up and clogging the cloth. The curved surface also provides an absolutely tight screen cloth and both screen cloth and frame vibrate as a unit with no whipping or flexing of the cloth. Because of this, 10 to 12 weeks continuous service is not unusual for the screen cloth — a money-saving advantage.

Under favorable conditions, the McNeely Vibrating Mud Screen has a capacity of approximately 700 gallons of drilling fluid per minute. It can be driven by electric motor, steam turbine or engine. Easy to install and move — and requires minimum of ground space and headroom.

From every angle, the McNeely Vibrating Mud Screen is your best investment for cleaning rotary mud!

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2740 E. 37TH ST., LOS ANGELES, CALIF., U. S. A.
GULF COAST AND MID-CONTINENT REPRESENTATIVE:
BAROID SALES CO., HOUSTON
EXPORT: The National Supply Corp. - Oil Well Supply Co.

Pumped 10 bbls. in 24 hrs.; completed.
T. J. Haley et al No. 1 Rose, C NE NE sec. 28-24-37.
Drlg. at 410 ft.
Flynn, Welch & Yates No. 72 State, C NW SW NE sec. 10-19-28.
T.D. 2,036 ft.; fishing for bailer.
D. & B. Oil Co. No. 1 Jenkins, C NW SW NW sec. 20-17-30.
Rigging up machine.

Chaves County

Tannehill No. 2 Campbell, C NE SE sec. 1-11-25.
Rigging up rotary.

Lea County

Vierson & Brown No. 1 Robbins, C NW SE sec. 14-11-32.
Drlg. 4,078 ft.
Shell Pet. Co. No. 1 State-Endura, C NE NE sec. 24-21-35.
At 3,677 ft. tested 5,000,000 ft. of dry gas; drlg. 3,837 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norine Realty Co., Inc., No. 1 Gallegas grant, SE SW NW sec. 19-11n-4e.
S.D. 620 ft.

Harding County

Khaay et al No. 1 De Baca, C sec. 19-20n-31e.
Running 8¼-in. at 847 ft.; 10-in. at 250 ft. (first report).

McKinley County

Seward et al No. 1 State, NE NE NE sec. 2-19n-9w.
T.D. 460 ft.; running pipe.
Forth & Hickerson No. 2 Santa Fe, NE NW NE sec. 29-20-9w.
Drlg. 230 ft. in shale.
Montrose Oil & Gas Co. No. 1 State, NE NE sec. 28-20n-9w.
Drlg. 535 ft.; 5 3/16-in. set at 500 ft.
S. Dysart et al No. 1 Bouton, E NW NE sec. 14-4n-10w.
Old well drilled deeper; resumed at 1,365 ft.

Quay County

Danube Drilling Co. No. 1 Will Wallace, NE NE SE sec. 13-9n-33e.
T.D. 1,000 ft.; 10-in. cemented at 505 ft.; cleaning out at 930 ft.
Quay County Dev. Co. No. 1 Wallace, SW SW SE sec. 19-9n-33e.
S.D. 814 ft.; rainbows at 814 ft.; show of salt water at 775 ft.

Rio Arriba County

El Vado Structure Properties Co., Ltd., No. 1 Tierra Amarilla grant, NE sec. 26-3e-1e (unsurveyed).
S.D.; rig on location.

Sandoval County

The Continental Oil Co.'s wildcat, its No. 1 L-Bar Cattle Co., near C E line section 2-13n-4w, Lagunitas structure, was abandoned in schist at 6,220 feet. Top of horizons were as follows: Dakota, 258; Morrison, 290; Navajo, 450; Kayenta, 700; Todilto, 1,130; Wingate, 1,250; Chinlee, 1,330; Glorietta, 2,817; Abo, 2,865; Pennsylvanian (Magdalena), 4,815 feet. Elevation is 6,750 ft.

San Juan County

Jack Amenda No. 2, SW NW SW sec. 25-30n-12w.
Drlg. 730 ft. in shale; will run 6⅝-in.
J. F. Cross et al No. 1 Wilson, SW SW SE sec. 17-30-11w.
S.D. 810 ft.
Continental Oil Co. No. 49 Rattlesnake, SW NE NE sec. 2-29n-19w.
Location (first report).
Cross & Poole No. 1 Aztec, sec. 1-30-11w.
Making water shutoff at 740 ft.
Southern Union Gas Co. No. 4 Government, C NW NE sec. 14-28-11w.
Drlg. 1,200 ft.; 8¼-in. at 1,190 ft.; 10-in. at 480 ft.
Nick Spatter No. 1 fee, C NE SW sec. 32-31-11w.
Running 6⅝-in. at 1,780 ft.

Torrance County

48 Pet. Co. No. 1 Greenfield, C NW SW sec. 17-9-8e.
Drlg. 1,250 ft. in sand.
Bruce Fraier No. 1 Graier, SE sec. 12-2n-31e.
Drlg. 1,210 ft. in granite wash water at 882-86 ft.

COLORADO

Adams County

Another test well in the Denver Basin was assured the past week when the trustees for the Hills Dome Oil Lease closed a contract with the Glenridge Oil Corp., of which J. B. Furstenberg is president, and Frank O. McCain is manager, for a turnkey job to complete their No. 1 Hills, SE cor. section 27-3s-64, to a depth of 5,500 feet. This well is located 24 miles east of Denver in the Watkins district, a short distance from several shallow holes put down some years ago by the Eman Oil Corp., in which shows of oil were encountered. The Hills Dome well spudded early in 1929 under a trusteeship organized by Nettie M. Slatt, who blocked up the acreage. She died before the well was completed and her brother, Carl Slatt, became manager. He died shortly thereafter, but before his death Dr. H. G. Wilkinson, of Colorado Springs, became associated with the project as a trustee and succeeded him as manager. A contract was then made with McCain, but no additional work was done awaiting the winding up of the Slatt estate. Operations have been resumed with cable tools. The hole is bottomed at 4,190 feet and has been shut down for the past three years after cementing the 8¼-inch at 3,985 feet. The casing is believed to be on top of the Hygiene series and when operations were suspended it was showing a little gas and enough oil in the shale to squeeze out with the hand. The new operators cemented back 200 feet to shut off caving ground and is cleaning out at 4,000 feet with the oil and gas again showing.

Hills Dome Oil Lease No. 1 Hills, SE SE SE sec. 27-3s-64.
T.D. 4,190 ft.; cmtd. back 200 ft. and C.O. at 4,000 ft.
Riddle Pet. Co. No. 1 Baxter, C SW sec. 2-2s-6w.
S.D. 700 ft. for drill pipe.

Archuleta County

Wm. E. Hughes Est. No. 4 fee (unsurveyed), 400 ft. E of No. 2 fee, sec. 24-33n-2e.
Spudding at 90 ft.
Oil City Pet. Co. No. 1-A Garnett, NW NE NW sec. 25-33n-2e.
S.D. 1,515 ft.; top Dakota series at 1,415 ft.
Oil City Pet. Co. and Archuleta O. & G. Co. No. 1 Rath, 330 ft. N of S line, 330 ft. W of E line, Lot 4, sec. 34-33n-2e.
Moving in rig.
K. L. Kendrick No. 1 Crowley (unsurveyed), sec. 2-32-1e.
Moving in material.

Baca County

A wildcat in Baca County, in the southeastern corner of the state, on a block of 40,000 acres 5 to 10 miles southwest of Springfield assembled by J. H. Everett and others, is to be drilled by Robb, Morgan & Ross. It is a 330-foot location out of the NW cor. of section 24-32-48, near the Edler postoffice. Last May a rig was up and a water well drilled. The leases were held in escrow. The new operators are moving in eight truck loads of rotary equipment and expect to begin spudding early in January.

Robb, Morgan & Gross No. 1, NE NE NE sec. 24-32s-48w.
Moving in rotary material; (first report).

Boulder County

Leslie R. Steele et al No. 1 Maxwell, SW NE NW sec. 24-1n-71.
Set 6⅝-in. on bottom at 2,412 ft.; drlg. 2,414 ft.

Elbert County

C. E. Lambert No. 1 Union Pacific, C sec. 13-8s-57w.
Drlg. 4,760 ft.; lime at 4,500-50 ft.

Jackson County

Colorado Oil Ref. Co. No. 1 North Park Coal, NW NW sec. 18-9n-78.
T.D. 1,505 ft.; U.R. 12¼-in. to bottom.
Continental Oil Co. No. 3 Hoyle, NW NW NE sec. 34-9n-78.
T.D. 5,258 ft.; top Morrison at 5,188 ft.; cmtd. back and drilled out cmt. to 5,063 ft.; perforated csg. at 5,020-38 ft. and testing.

Jefferson County

Ruby Hill O. & G. Co. No. 1 Braden, SE cor. sec. 24-4s-69.
Drlg. 4,330 ft.; running 3 shifts.

La Plata County

McGarr Pet. Co. No. 1 Pinton Mesa, CSL NE NE sec. 34-32n-12w.
S.D. 1,300 ft. for 10-in.

Larimer County

California Co. No. 1 State, SE SW NE sec. 6-11n-68w.
R.U. rotary.

Las Animas County

Mountain States Oil Corp. No. 1 Nickols.

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In preparing this book Doctor Emmons had in mind presenting to the public a textbook and a brief compendium or manual relating to the geology and deposits of oil-bearing areas. Essentially all of the world's oil fields are briefly treated, with references to the important literature.

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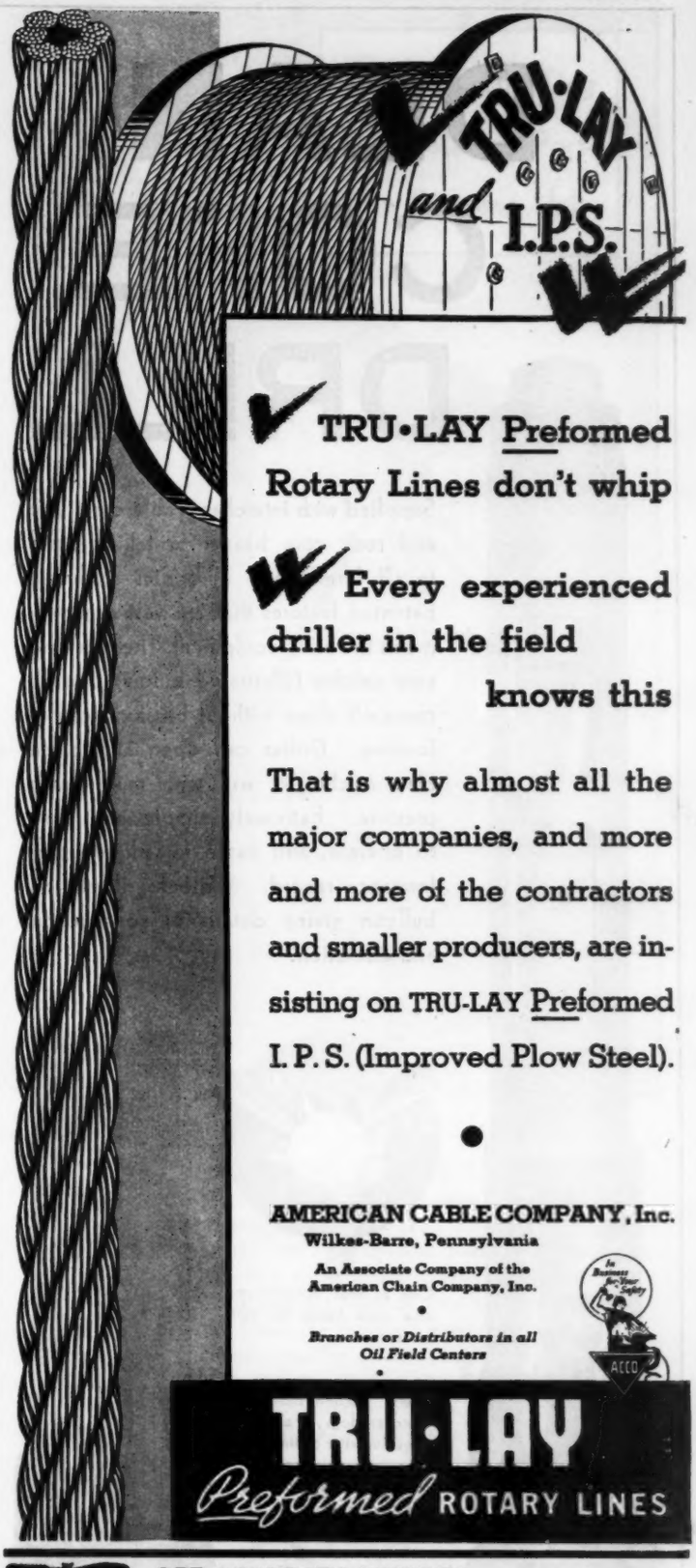

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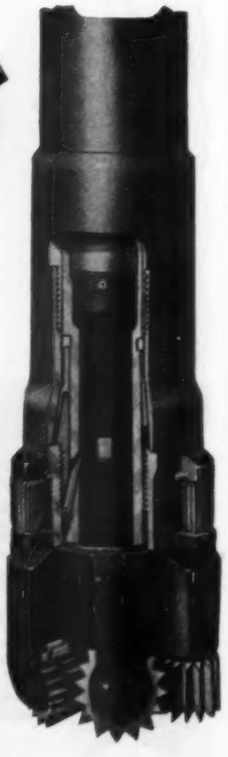

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C NE NE SE sec. 10-34-62.
Tools recovered; making new hole at 1,773 ft.; 10 ft. in Greenhorn lime.

Lincoln County

Consolidated Smelting & Metals Co. No. 1 Hancock, NE NE sec. 7-17s-53.
T.D. 1,780 ft.; moving in material to rebuild derrick.

Moffat County

Ohio Oil Co. has made a location for a well on the Bell Rock structure 9 miles west of Craig in its No. 1 Robertson, section 3-6n-92. Midwest Refining Co. drilled a test 2,800 feet several years ago and encountered a flow of 35,000,000 feet of dry gas at a total depth of 2,800 feet in the Mesa Verde. Inability to shut off water and save the gas resulted in the plugging of this test. The Ohio well will be drilled for a reserve supply of gas for Craig.

Ohio Oil Co. No. 1 Robertson, C SW SW sec. 3-6n-92w.
Location; (first report).
Texas Co. No. 7 Knowlton, NE cor. Lot 8, sec. 10-4n-91w.
Drlg. 3,927 ft.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NE sec. 21-26n-17w.
T.D. 3,705 ft.; fishing for tools.
L. C. Osborne et al No. 32 Ute, CSL NE NE sec. 15-32n-18w.
Drlg. 330 ft.

Morgan County

Swisher et al No. 1 Lunt, 92 ft. W of E line and 360 ft. N of S line, sec. 3-4n-60.
T.D. 1,300 ft.; U.R. and carrying 4¼-in. at 890 ft.

Park County

South Park Oil Co. No. 1 State, SE SE SW sec. 16-11s-75w.
Landed 6¼-in. at 3,658 ft. and underreaming to set on bottom at 3,720 ft.
South Park Oil Co. No. 1 Lebert, NE NE NW sec. 21-11s-75w.
Cellar.

Prowers County

Trojan O. & G. Co. No. 1 Lotus Oil, NW NE NE sec. 15-23-4n.
T.D. 5,890 ft.; reconditioning hole at 5,227 ft.

Routt County

Mid-Colo Pet. Co. No. 1 Omhalt, NE NE SE sec. 29-4n-87w.
T.D. 2,860 ft.; good show of oil; lowering 8¼-in.

WYOMING

Albany County

Ohio Oil Co. No. 2 Emery, NE SE NE sec. 18-15n-75w.
Drlg. 2,264 ft.
California Co. No. 3 Holst, 1,650 ft. W of E line and 970 ft. N of S line, sec. 13-17n-77w.
Rigging up rotary.

Big Horn County

J. W. Bales No. 1 Parker, C SW SW sec. 23-4-89.
Drlg. 683 ft.
Peter Evanoff et al No. 1 McAllister, Lot 40, NW NE SE sec. 3-55n-97w.
S.D. 2,296 ft. (cor.) for casing.
Kinney-Coastal Oil Co. No. 3 Government, SW NW NE sec. 24-56n-98w.
T.D. 4,234 ft.; redrilling at 4,170 ft.
W. S. Gilbert No. 1 Zaring, SE SE SE sec. 35-52n-93w.
Drlg. 1,041 ft.
Ohio Oil Co. No. 4 Byron Union, SW SW NE sec. 22-56-97.
Drlg. 2,530 ft. in shale.
Ohio Oil Co. No. 1 Lindsay, SW SW NE sec. 23-56-97w.
T.D. 359 ft.; set 12½-in. at 308 ft.
Montana-Wyoming Oil Co. No. 1 Allen, 210 ft. from N line, 936 ft. from E line, Lot 52 (SE NW SE) sec. 32-56n-97w.
Drlg. 3,270 ft. on top of Embar.
J. H. Shaffer No. 1 Keachie, C SW SW sec. 5-49-61.
S.D. 1,350 ft. (cor.); will seal off water at 1,276 ft.
W. O. Taylor et al No. 1 Hoskins, Lot 5 (SE SE), sec. 25-56n-97w.
T.D. 5,275 ft.; plugged back to 3,500 ft.; redrilling at 4,175 ft.

Carbon County

Ohio Oil Co. and California Co. No. 2 State, C NW NW sec. 36-21n-79w.
T.D. 5,910 ft.; plugged back to second Sundance to test.
Ohio Oil Co. and California Co. No. 1 Union Pacific, Acct. J, NE SW NW sec. 25-21-79w.
Coring at 4,294 ft.
Ohio Oil Co. No. 3 State, CEL SE NE sec. 34-20n-79w.
T.D. 3,225 ft.; unable to cement liner on account crooked hole; cemented back with 30 sacks; will redrill.
General Pet. Corp. No. 1 Whitford, SW SE SE sec. 24-20-84.
Coring 5,921 ft.
Shirley-Wyoming Oil Co. No. 1 Government, NW NE sec. 2-26n-89w.
Drlg. 1,300 ft. in red beds.
Union Oil Co. of Calif. and Mutual Oil Synd. No. 1 Union Pacific, 1,890 ft. from E line and 1,320 ft. from S line, sec. 1-18-78w.
S.D. at 4,000 ft. to repair boilers; waiting for new drill stem.

Converse County

Continental Oil Co. No. 60 State, NW SW NE sec. 9-33-76.
T.D. 6,597 ft.; plugged back to Lakota and perforating pipe at 4,362-4,406 ft.
John Ackard No. 1 Daniels, SW SW SE sec. 17-32-71.
Drlg. 3,050 ft.

Fremont County

Mid-American Oil Co. No. 3 Government, NW NE SW sec. 14-28-92.
Drlg. 2,320 ft. in saturated lime.
Nelson & Poupiert No. 3 Enos, Lot 7, sec. 27-3n-1w.
S.D. 1,100 ft.

Hot Springs County

California Exploration Co. No. 2 Government, NW SW NW sec. 4-44-96.
T.D. 4,235 ft.; running 8⅝-in. to 3,890 ft.; pipe frozen at 2,940 ft.; jarring.
Ohio Oil Co. No. 72 Millsiron Cattle Co., NE SE SE sec. 19-46n-98w.
T.D. 3,993 ft.; underreaming 7-in.; good saturation at 3,931-41 ft.; will standardize and complete.

Lincoln County

Superior-Wyoming Oil Co. No. 2-B, NE NW Lot 3, section 3-26n-113, La Barge field, was completed at 890 feet for 10 bbls. on the pump.

Laramie County

The Amerada Petroleum Corp. has placed on record leases on approximately 15,000 acres in Township 13n, Range 68w, 8 to 10 miles west of Cheyenne and north of the Round Butte structure in Colorado upon which the California Co. is rigging up for a test to the Sundance. Leasing followed a survey by its subsidiary the Geophysical Service, Inc. Included in the block is the Warren ranch of 3,500 acres. The block includes state and patented land, but no government or railroad land.

Ohio Oil Co. No. 7 Lamb, C NW NE section 5-35-65, Lance Creek field, reported a completion in the third Sundance last week, made 3,429 bbls. of oil and 1,500,000 feet of gas first 24 hours, one of the best wells so far complete in the field.

Niobrara County

Black Hills Ref. Co. No. 1 Wyrick, C SW NE sec. 28-36n-64w.
Derrick.
J. H. Huber Co. No. 1 Jones, NE SE NW sec. 6-35n-65w.
T.D. 4,096 ft.; plugged back to 4,070 ft.; S.D.; unable to shut off water.
Fall River Royalty & Producers Co. No. 5-L Briggs, CSL NE NE sec. 2-39n-61w.
Drlg. 385 ft.
Ohio Oil Co. No. 6 Converse Sheep, 619 ft. from E line and 680 ft. from S line, SW SE sec. 32-36n-65w.
Cellar.
Ohio Oil Co. No. 7 Converse Sheep, C NW SE sec. 32-36n-65w.
Spudding.
Ohio Oil Co. No. 5 Converse Sheep, C SE SW sec. 32-36n-65w.
Rig up.
S. & H. Dev. Co. No. 1-A Olinger, SE NE NW sec. 1-36-62.
T.D. 1,674 ft.; rigging up to pull and reset 6 3/16-in. at 1,650 ft.; to shut off Dakota water and test show in Lakota.

Sweetwater County

Wilmington Oil Co. No. 1 fee, NW NW NW sec. 18-26-98w.
T.D. 3,115 ft.; repairing derrick; building camp.
Mountain Fuel Supply Co. No. 1 Brooks, C NW NE sec. 15-16n-104w.
Drlg. 2,189 ft. in Frontier.

Uinta County

Druscilla Connell et al No. 5 Government, SW NW NW sec. 24-15n-118w.
Drlg. 1,070 ft.
Intermountain Pet. Corp. of Utah No. 1 Union Pacific-Haynes, SW NW SW sec. 24-19n-118w.
Drlg. 1,571 ft.
W. D. Marshall No. 1 Government, NW SW SE sec. 12-15n-118w.
Drlg. 850 ft.
Ragan Pet. Co. No. 4, NW SW NW sec. 13-16n-118w.
Drlg. 1,070 ft.

Weston County

Glen Taylor No. 1 Bock, C SW NE section 3-45-63, Osage field, was dry in the Muddy sand at 1,117-25 feet. Total depth is 1,155 feet. There was a small show of oil at 526 feet and gas

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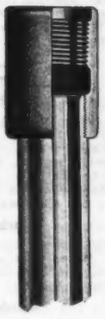

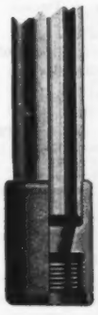

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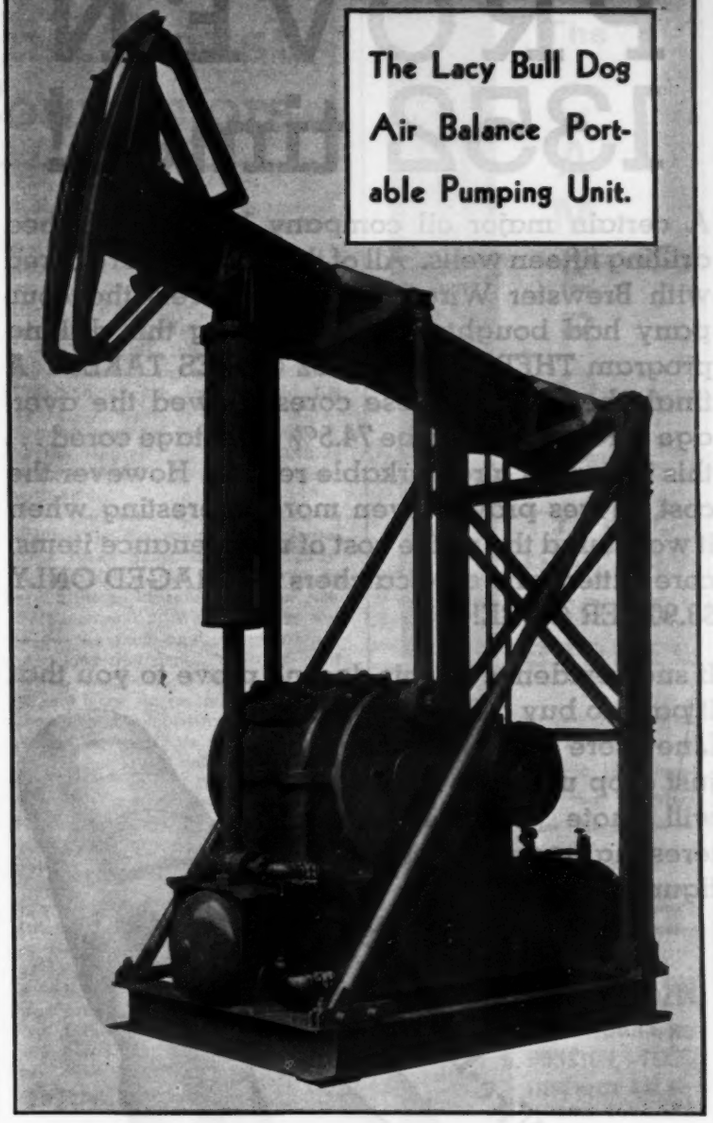

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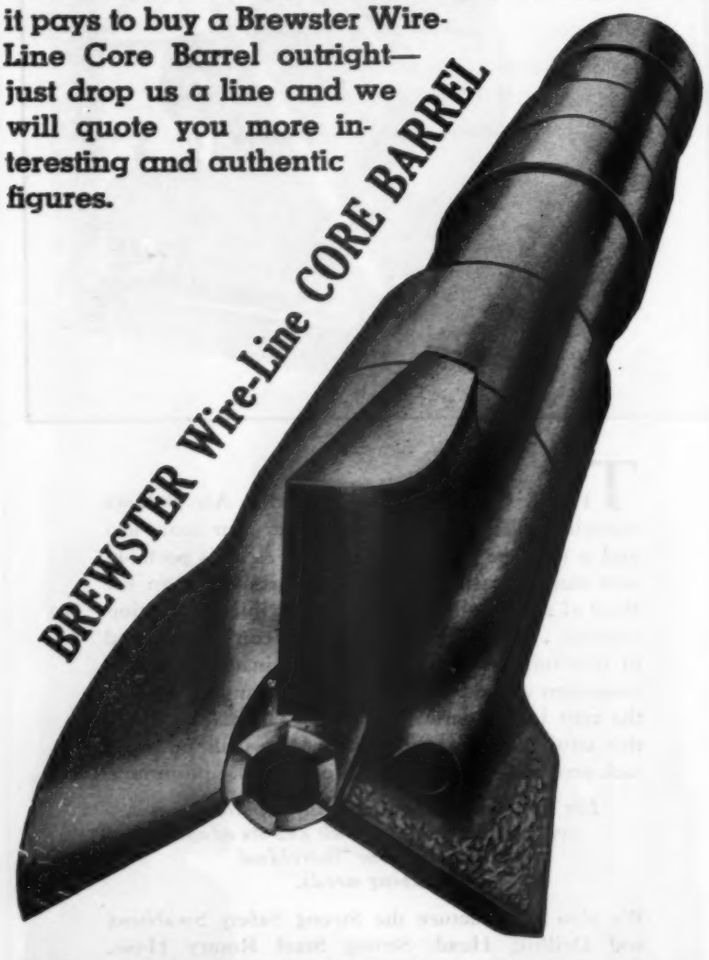

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at 1,100 feet. One new operation was reported in the Des Moines-Osage Oil Co. No. 12 Ost.

Conway Oil Corp. No. 1 Government, C SE NW sec. 7-41-60.
S.D. 2,087 ft. (cor.).
Beaver Creek Oil Synd. No. 1 State, C NE NE sec. 22-44-63.
Des Moines-Osage Oil Co. No. 12 Ost, C NE NE sec. 25-46n-64w.
Rigging (first report).
Henry Egert No. 2, SW NE NE sec. 8-46n-63w.
Drlg. 180 ft.
H. D. Wiltse No. 8, CNL NW NE sec. 17-46n-63w.
Rig on location (first report).

Washakie County

Ariton & Doyle No. 1 Government, SW SW SE sec. 29-48-91w.
T.D. 900 ft. (cor.).
Wyoming O. & R. Co. No. 2 Government, NW SW SW sec. 31-48-90.
Drlg. 800 ft.

MONTANA

Big Horn County

Big Horn O. & G. Co. No. 24, NW SE NE sec. 26-1s-33e.
Drlg. 596 ft.
Daniels Pet. Co. No. 1 May, C SE SE sec. 13-1s-33e.
T.D. 3,000 ft.; recmtd. 6¼-in. at 2,595 ft.; top Chugwater at 2,900 ft.

Carbon County

Bailey Round Butte Oil Co. No. 1, 1,120 ft. W of E line and 3,140 ft. N of S line, sec. 3-6s-23.
Drlg. 1,560 ft.

Choteau County

Mills & Decker No. 1, NE NW sec. 29-27n-13e.
Rig up.

Fallon County

Montana-Dakota Utilities Co. No. 1, NE NW sec. 17-3n-62e.
T.D. 5,850 ft.; cmtd. 8⅝-in. at 5,828 ft.; W.O.C.

Fergus County

Kalispel-Kevin Oil Co., No. 2 Emmons, C SW SE sec. 20-21n-18e.
Drlg. 440 ft.
H. C. Rowland et al No. 1, NE NW NE sec. 13-17n-23e.
S.D. 831 ft.
H. C. Rowland No. 2, SW SW NE sec. 13-17n-23e.
Drlg. 230 ft. (first report).
E. A. Fenholt No. 1, NW NW SW sec. 21-21n-17e.
Rigging up.
Judith Operating Co. No. 1 Government, C SW SW sec. 26-22n-17e.
Drlg. 1,050 ft.

Gallatin County

Ben W. Ryan No. 1 Tice, NE NE NE sec. 28-1n-2e.
Drlg. 2,632 ft.

Glacier County

There were no completions in the Cut Bank field. Two new locations were made, one by the Texas Co. and the other by Gardner and others.

A. B. Cobb No. 5 Walberger, C NE NE sec. 35-35n-6w.
Rig.
Cobb-Pardee No. 1 Stufft, C SE NW sec. 25-36n-6w.
Spudding 80 ft.
Cobb-Reagan No. 1 Jackson, NE NW NW sec. 5-32n-5w.
Rigging.
Lon Crumley No. 2 Jones, C NE SW sec. 31-34n-5w.
7-in. cmtd. at 2,690 ft.; S.O.; W.O.C.
Fowler et al No. 1 Tweedy, SW SE SE sec. 35-33-6w.
T.D. 2,798 ft.; recovered all but 150 ft. of liner; swabbing 85 bbls. per day.
Gardner et al No. 1 Cole, C SE NW sec. 2-32n-6w.
Rig (first report).
Indian Oil Co. No. 1 Britton, C NE NE sec. 14-34-6w.
Drlg. 455 ft.
L. P. Jackson et al No. 1 Tribal, NW SE NW sec. 22-34n-7w.
Rigging.
R. C. Jeffries No. 4 Lukens, NE NE NE sec. 12-33n-6w.
T.D. 2,710 ft.; fshg. for bit.
McCabe & Jeffries No. 1 Rasmussen, NE SW NE sec. 32-33n-5w.
Drlg. 540 ft.
Montana Power Gas Co. No. 1 Benish, C SW NW sec. 9-33n-5w.
Drlg. 800 ft.; Colo. 455 ft.; 10-in. at 476 ft.
Montana Power Gas Co. No. 1 McDougal, C SE NW sec. 31-34n-5w.
Spudding 250 ft.
Vadeau Bros. No. 1 Tribal, C Lot 4, sec. 6-32n-5w.
Spudding 260 ft.
Neil Spencer No. 1 Tweedy, CSL SE SW sec. 25-33n-6w.
Rigging.
Santa Rita O. & G. Co. No. 1 Shearon, 460 ft. S of N line and 348 ft. W of E line, sec. 34-36n-6w.
Drlg. 1,250 ft.
Santa Rita O. & G. Co. No. 1 Lander, C N half SE sec. 16-35n-6w.
T.D. 2,925 ft.; fshg. for tools.
Santa Rita O. & G. Co. No. 1 Corey, NE NW SE sec. 5-32n-5w.
Drlg. 2,870 ft.
R. C. Tarrant No. 2 Hope, NW SW SW sec. 18-34-6w.
T.D. 3,610 ft.; drlg. by tools.
R. C. Tarrant No. 4 Getty, NE NE SW sec. 2-34n-6w.
Drlg. 2,200 ft.
R. C. Tarrant No. 2 Jones, NW NW SW sec. 31-34n-5w.
Drlg. 1,380 ft.
Texas Co. No. 4 fee, 1,468 ft. E of W line and 660 ft. N of S line, sec. 15-35n-6w.
Drlg. 388 ft.
Texas Co. No. 1 Walker, C NE NE sec. 2-36n-6w.
Location (first report).

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e.
Drlg. 413 ft.

Liberty County

Western Natural Gas Co. No. 1 Turner, C SE sec. 15-37n-4e.
Drlg. 1,530 ft. (first report).

Pondera County

Dave Mills No. 1 Erickson, SW SW SW sec. 3-27n-4w.
T.D. 1,905 ft.; 1,000 ft. of oil; running pipe.
Texas Co. No. 1 Unit 2, NE SW SW sec. 21-30n-5w.
Drlg. 1,430 ft.

Teton County

Teton Oil Co. No. 1 Reickhoff, C NE SW sec. 14-24n-5w.
Rigging.

Toole County

Carscallen & Mitchener No. 1 Greguer, C S half NE sec. 10-34n-2w.
Drlg. 1,620 ft.
Cassidy & Cassidy No. 1 Veich, 220 ft. W of E line, 660 ft. N or S line, sec. 31-35-2w.
S.D. 1,630 ft.
Cook & Eddy No. 1 Kaskin, SW SW SW sec. 25-36n-2w.
Spudding 50 ft.
A. E. Crumley No. 8 Shaw, SE NW SE sec. 35-36n-2w.
Rig.
Eddy & Engleking No. 1 Sohn, SW cor. NE sec. 26-35n-2w.
Spudding 50 ft.
Fraser & Smith No. 1 Crabtree, NE NE SE sec. 14-34n-2w.
M.I. machine (first report).
Huso Brothers No. 3 Government, SW NE SE sec. 14-35n-3w.
Drlg. 1,340 ft.
Fred R. Munger No. 1 Government, SW NE NW sec. 13-35-2w.
T.D. 1,546 ft.; Ellis-Madison at 1,535-46 ft.; show of oil; acidized 500 gals.; No results; will acidize again.
W. M. Hanlon No. 2, SW NW SE sec. 27-3n-3w.
T.D. 1,712 ft.; acidized and cleaning out.
Imperial-Craig Oil Co. No. 2 Martin, 220 ft. N of S line and 1,546 ft. W of E line, sec. 18-35n-1w.
Drlg. 450 ft.
Nepsted-Montgomery-Farther No. 1 Grass, 660 ft. W of E line and 220 ft. N of S line, sec. 17-35n-1w.
Rigging.
Ohio Oil Co. No. 8 Reeg, NW NW SW sec. 14-35n-2w.
T.D. 1,562 ft.; Ellis-Madison at 1,535-60 ft.; little oil; acidized 500 gals.; W.O.A.
L. O. Reickoff No. 2 Government, SW SW NE sec. 3-35-3w.
S.D. 1,265 ft.
Stock Brothers No. 3 Haggerty, NW SW SW sec. 13-35n-2w.
S.D. 1,524 ft.
C. Leonard Smith No. 1 Eckoff, C SE sec. 6-33n-2e.
S.D. 575 ft.
C. Leonard Smith No. 1 Federal Land Bank, C NE NE sec. 11-35n-1e.
S.D. 175 ft. for winter.
C. Leonard Smith No. 1 Halverson, C NE SE sec. 18-33n-2e.
S.D. 730 ft.; tested 500,000 ft. of gas at 720 ft.
C. Leonard Smith No. 1 H. Halverson, NW NE sec. 18-33n-2e.
Drlg. in; 6⅝-in. set at 1,135 ft.

UTAH

Grand County

Columbia Crude Co. No. 1 Rath, SW SE sec. 12-25s-20e.
Drlg. 148 ft. after straightening crooked hole.
Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22n-22e.
Drlg. 1,690 ft.
Glenn Ruby et al No. 1 State, NE SE SE sec. 34-21s-16e.
Running pipe to S.O. water at 40 and 70 ft.; show of oil at 75 ft.

Utah County

Diamond Oil Co. No. 4 Government, CSL SE NW sec. 16-8s-5e.
Drlg. 3,942 ft.

Washington County

Arrowhead Pet. Co. No. 1-A, SE SW NE sec. 1-43-15.
Drlg. 3,012 ft.
Anna V. Toney No. 1 Toney, CNL NE SE sec. 23-40s-11w.
Drlg. 370 ft.
W. W. Toney No. 1 Government, CNL SE SW sec. 18-41s-12w.
Drlg. 185 ft.

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Among Gulf Coast Drilling Contractors

L. W. Capps set screen and is preparing to test No. 1 Wilson at Port Lavaca for Crown Central Petroleum Corp.; has shut down No. 1 Mitchell, a wildcat in Jackson County, for L. A. Douglas and is drilling below 6,000 feet on No. 1 Lock Moore in Jefferson Davis Parish for J. K. Lewis.

George Echols is drilling in Duval County for Sun Oil Co. is preparing to complete No. 1 Mieska at Placedo for same company and at Taft No. 3 Hunt is drilling. In the Gillis field, No. 1 Powers has been finished for a producer for Fohs Oil Co.

Smith & McDannald are drilling below 6,000 feet on No. 2 Smedes at St. Martinsville in St. Martin Parish for Tide Water Oil Co.; are testing No. 2-A Pipkin at Big Hill for Stanolind Oil & Gas Co.; No. 3 McIntyre has been completed at Louise for Pure Oil Co. and a rig is being moved in for No. 2 Wilder; a production string of casing has been cemented on No. 1 Evans at Long Lake for Tide Water Oil Co. and for the same company in East Texas No. 6 Whittington is being completed. At Hastings for Stanolind Oil & Gas Co., No. 2 Berger is coring below 5,900 feet.

Nicklos Drilling Co. has cemented casing at 8,310 feet on No. 1 Kern at Tepetate for Continental Oil Co. and has received the contracts for No. 1 Miller and No. 1 Adrian.

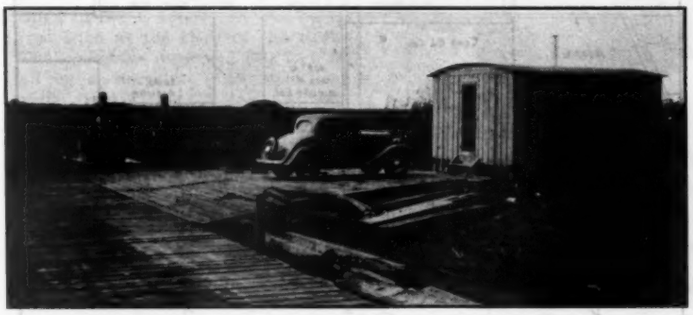
Rutherford Drilling Co. completed No. 1 Johnson for a good well at the Bay City field for Skelly Oil Co. and at Mission for the same company he has one active rig on the Seabury lease.

Edwards Drilling Co. has abandoned No. 1 Marshall at the Anahuac field for Domestic Exploration Co.; is drilling below 8,400 feet on No. 1 State for Jefferson Lake Oil Co. at the Jefferson Island field in Iberia Parish and has one rig at the Dickinson field for Pure Oil Co.

W. V. (Bill) Bowles is running a production string to complete No. 2 Christian at the Batson field for Texas Co. which is bottomed at 4,604 feet, and for the same company at the Manvel field No. 4 Rash is being swabbed in after being treated with acid.

Al Buchanan of San Angelo is drilling for five companies in Southwest Texas fields. Rigs in the Plymouth field of San Patricio County are drilling, Plymouth Oil Co. Nos. 24, 25, 26 and 27 Welder C. One test is on the sand and others are approaching that depth. The C-25 crew has a bad fishing job at 4,192 feet. A new large rig recently moved into the field is completing No. 24-C. In Duval County, rigs are drilling in the Loma Novia and Seven Sisters fields for Humble, Texas, Shell and Buchanan & Blanco Oil Co.

Trinity Drillers, Inc. and Rubsamen and Carter Drilling Co., associated companies, have four rigs drilling in Southwest Texas. In Live Oak County's Fort Merrill field, Slick-Urschel Oil Co. No. 1 Watson and Shipp is on the sand. A drill stem test failed at 4,646 feet to get good results and a wall test is being made before setting casing. Montour Production Co. No. 1 Coffee is being completed in the Lopez field, and rig is drilling the Superior Oil Co. No. 2 Billings below 550 feet.



Living quarters of Ben (Bud) Coyle, well-known drilling contractor of Houston, who has built this modern one-room house at the Mud Lake prospect in southern Cameron Parish, Louisiana, on which his rig is being used in drilling No. 1 Lutcher Moore for Pan American Producing Co. in section 32-14s-10w, about 2 miles inland from the Gulf of Mexico.

The well is about 3,162 feet out in the ooze and marsh grass and is accessible by a board road which had to be constructed to the location before material could be moved in. This is typical of all wildcats near the Gulf and around inland bays and is one of the many problems encountered by contractors in drilling such locations.

While Bud is kept busy looking after his two other rigs in Louisiana, he spends much of his leisure moments at his house at Mud Lake where he can bag his limit of ducks and geese within a short time. One of his specifications for the house was a good stove on which he could cook himself a duck dinner.

At Port Barre, St. Landry Parish, Bud has rigged up for a second test for Pan American Producing Co. It is No. 1 Cormier, about 837 feet north of No. 1 Haas and Hierch, completed by the company two weeks ago for a good producer from sand bottomed at 4,883 feet. In the northern part of St. Mary Parish for Herton Oil Co., salt water was made when No. 1 Roane was given a production test from sand bottomed 7,512 feet.

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Texas and Louisiana Gulf

TWO WELLS EXTENDED GILLIS AREA IN COASTAL LOUISIANA

By
F. L. SINGLETON

HOUSTON, Tex., Dec. 23.—The prospects of Herton Oil Co. No. 1 Roane opening a new field in northern St. Mary Parish, Louisiana, was temporarily set back when it showed salt water with a small amount of oil on a production test made from 7,460-7,512 feet, the total depth. It was swabbed in from a screen setting made from 7,460-7,512 feet, and flowed salt water estimated at 400 bbls. per day with 5 to 10 per cent oil. The operators have killed the well and plugged a few feet and late in the week were ready to test again.

While the salt water showing does not make the well look encouraging, it does not condemn the area, as the well tested 3,420 feet of pipe line oil two weeks ago on a drill stem test, which indicates that it may have been drilled too deep, or is on the edge of the known structure. The test is located on a solid block of approximately 12,000 acres in section 38-13s-9e, which has been worked with geophysical instruments. If productive it will open the first production for the parish.

Second Test Running Low

At St. Martinsville, St. Martin Parish, Tide Water Oil Co. No. 2 Smedes is drilling in shale below 5,700 feet, which is over 200 feet lower than the producing horizon of the discovery well which was completed in oil sand at 5,582 feet. An electrical coring test made at 5,580 feet showed oil sands from 5,556-64 feet and salt water sand from 5,564-80 feet. The discovery well, No. 1 Smedes, completed November 12, has shown an increase in production and is flowing at the rate of 962 bbls. per day through a 11/32-inch choke with tubing pressure 1,325 pounds and casing pressure 2,050 pounds.

The second test for the new Cheneyville area in Rapides parish was announced by the Amerada Petroleum Corp., being No. 1 Wells Land, located 495 feet out of the NW cor. of tract No. 2 in section 52-1s-2e, approximately 1,000 feet east of the company's discovery well.

Two Extensions of Gillis

Two extensions were marked up for the Gillis area, Calcasieu Parish, by the completion of two wells by Fohs Oil Co. and Union Sulphur Co., Fohs Oil Co. well on the Powers land, several hundred feet northwest of the most westerly producer, was washed in from a screen setting from 6,995-7,000 feet and flowed at the rate of 720 bbls. per day through a one-quarter inch choke with tubing pressure 1,185 pounds and casing pressure 750 pounds. Location is in section 14-9s-8w. To the north in section 12-9s-8w, Union Sulphur Co. No. 4 Powell flowed 600 bbls. per day through a 16/64-inch choke from a depth of 6,724 feet.

Humble Oil & Refining Co. has announced location for No. 5 Kratzer for the Roanoke field, Jefferson Davis Parish. It is 600 feet east of the west line and 1,000 feet south of the north line of a 120-acre lease in section 11-9s-4w. The company's No. 3 Kratzer is fishing at 7,842 feet.

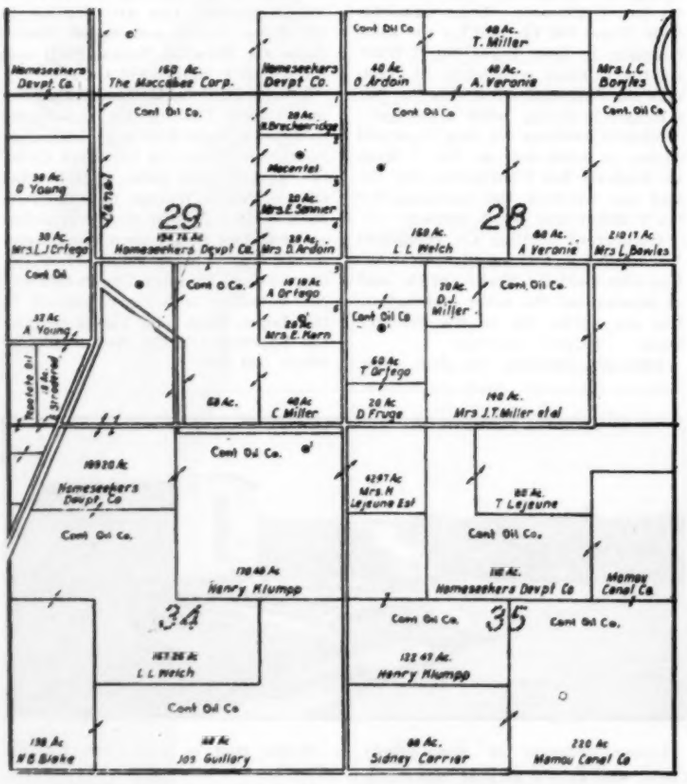
Three Probable Failures

Along the Texas Coast, three interesting wildcats were being looked upon as failures due to production tests which showed salt water. Approximately 2 miles southeast of Bay City, Matagorda County, Hamman Exploration Co. No. 1 Cleveland in the Elisha Hall Survey cored sand showing oil last week from 8,352-61 feet and at a total depth of 8,376 feet with 7-inch casing cemented at 8,350 feet, it washed for two hours and started flowing wash water with a brackish taste through a one-half inch choke. No gas pressure was registered and the crew was pulling screen and liner preparatory to deepening. The Discorbis was topped at 6,595 feet, Heterostegina at 7,250 feet, Marginulina at 7,435 feet, and it was tested in the Frio sand. Across the line to the Lockridge prospect in Brazoria County, Gulf Production Co. No. 1 Wilkes in the John W. Hall Survey was swabbing 3,300 feet and showing salt water with a trace of oil and gas. It was originally drilled to 6,606 feet and was plugged back to 6,320 feet to test several showings encountered in cores from 6,300 to about 6,400 feet. Seven-inch casing was cemented at 6,217 feet. The Discorbis was topped at 5,735 feet, Heterostegina 5,952 feet and the Marginulina at 6,055 feet.

San Jacinto County

In the Cold Springs area, central San Jacinto County, J. E. Hooper and others No. 1 R. B. Love, located in the Drury McGee Survey, topped the Cockfield sand at 3,582 feet and salt water sand at 3,634 feet. It is coring ahead in salt water sand below 3,636 feet and will probably be abandoned during the week. The fifth wildcat location to be announced for this county within the past three weeks was made by Goholson and Decker for No. 1 Randolph, located 330 feet south of the center of Lot 7 in the Vital Flores Survey.

The Bay City field, Matagorda County, was extended approximately 2,000 feet south by the completion of Skelly Oil Co. No. 1 Johnson in the M. Cummings Survey. Bottomed in the Frio sand at 7,510 feet with 7-inch casing cemented on bottom, it was tested through perforated casing from 7,503-06 feet and flowed 632 bbls. of oil per day through a one-quarter inch choke with tubing pressure 975 pounds and casing pressure 1,200 pounds. This is a record producer for the field and is a new depth horizon for the field. The completion of this test finishes the company's original development program and it is understood that several locations are to be announced after the first of the year.



Location of drilling and producing wells, in the Tepetate field, in Acadia Parish, La., which is being developed by Continental Oil Co.
(Courtesy of W. W. Zingery, Esperson Building, Houston, Tex.)

Wild Gasser Controlled

Magnolia Petroleum Co. No. 1 Broussard, located on the Big Lake prospect, Cameron Parish, which blew out and ran wild for several hours, has been killed and plugged back to 7,968 feet, where another test is to be made through perforations. The blowout occurred while the operators were attempting to make a drill stem test at 8,040 feet, and it is estimated to have made 7,000 bbls. of salt water per day with 35,000,000 feet of gas. Location is 5 miles east of the East Hackberry field and the same distance from the Sweet Lake field in section 13-12-9w.

Shepherds Mott

South of the above field on the Shepherds Mott prospect, much attention is being given Helmerich & Payne No. 1 Hawkins, which has been successful in getting through a thick section of heaving shale and is ready to test after cementing 5-inch casing at 7,326 feet. The test is bottomed in the Frio sand at 7,326 feet, and due to its high structural position with that of the Wadsworth-Smith well to the west, it is considered to have a good chance to produce. Location is the D. McCarthy Survey.

Zeni Oil Co. and others No. 1 Houston County Timber Co., 2 miles north of Kennard, Houston County, reported last week as abandoned at 7,037 feet, was taken over by the Gulf Production Co. and Magnolia Petroleum Co. after the contractor has started tearing down the rig, and it has been deepened to the Woodbine sand. The Austin Chalk was topped at 7,041 feet, with the base being at 7,041 feet. The Woodbine sand was picked up at 7,322 feet and it is drilling ahead in shale below 7,340 feet. The latter two companies own considerable acreage around the well and financed its deepening. Location is the I.&G.N. Survey, abstract No. 509.

In Turtle Bay Area

Stanolind Oil & Gas Co. No. 1 Barrow, completed last week as the discovery well of the Turtle Bay pros-

pect, northern Chambers County has been pinched down and on the last 24 hours ending at 7 a.m. December 18, it flowed 95 bbls. through a one-eighth inch adjustable choke with tubing pressure 600 pounds and casing pressure 950 pounds. The total production for the well since its completion ending December 18 was 1,086 bbls. While no locations have been announced, it was learned that the company is making arrangements to drill three offsets, two of which will be out in the waters of Turtle Bay and the other a west offset on the Wm. Cooper tract.

In Montgomery County, Jack Frazier is building roadway for No. 1 J. W. Maxey, a wildcat located 330 feet south and 330 feet east of the northwest corner of a 500-acre tract in the James Brown Survey. Northwest of the town of Silsbee, Hardin County, Republic Production Co.-Houston Oil Co. are moving in material for No. 1 A. A. Burrell, a wildcat located 330 feet north of the south line and 1,750 feet west of the east line of the A. A. Burrell Survey No. 5-A.

Anahuac Field

At the Anahuac field, Chambers County, Humble Oil & Refining Co. extended the field a short distance to the east by the completion of No. 6 Broussard in Section 63, which flowed 28 bbls. per hour from sand bottomed at 7,085 feet. The company has three other wells due for completion. No. 2 Engels in section 50 topped oil sand at 6,992 feet and 7-inch casing was cemented at 7,041 feet. Bottom of the hole is 7,082 feet. In section 58, No. 10 Middleton is bottomed in oil sand at 7,082 feet with 7-inch casing cemented at 7,041 feet. In the north extension area, No. 5 White topped the oil sand at 7,057 feet and casing will probably be run the first part of the week. The Discorbis was topped at 6,016 feet, Heterostegina at 6,375 feet, Marginulina at 6,674 feet, and Frio at 7,057 feet. Based on the latter marker, which is the top of the oil sand, it is 36 feet lower than No. 4 White, located to the south, which indicates a gradual dip in the structure. Location is in the James McGahey Survey.

Humble Oil & Refining Co. announced location for two wells. They are No. 4-B Stewart, located 584 feet east of the west line and 933 feet due south of the company's No. 3-B Stewart in the John Sellers Survey, and No. 2-B Bayou Development Co., situated 600 feet east of the west line of lease and 1,866 feet due south of No. 1-B in the John Sellers Survey. Approximately 3,000 feet of the nearest production in the John Sellers Survey, the company is running tubing preparatory to testing No. 6-A Maco Stewart that is bottomed in the deep pay at 9,142 feet. Along the Dickinson Bayou, Stanolind Oil & Gas Co. has plugged back to 9,093 feet and drilled out cement to 9,095 feet, where it is to be tested through perforated casing. It was originally drilled to 9,135 feet and tested salt water. On No. 3 State casing has been perforated from 8,039-47 feet and it was being swabbed in at the close of the week. Location was made for No. 5 State. It is 1,347 feet south, 19 degrees, 53 feet east of Humble Oil & Refining Co. No. 1 Townes in tract No. 3.

Hastings Field

In the Hastings field, Stanolind Oil & Gas Co. completed one well and has two more scheduled for completion. No. 3 Pennock, in Survey 36, made 469 bbls. in 20 hours through a one-quarter inch choke with tubing pressure 900 pounds and casing pressure 600 pounds. It is bottomed in sand at 5,776 feet. In the same survey, No. 4 Drake is bottomed in oil sand at 5,880 feet with 7-inch casing cemented at 5,660 feet. In the north part of the field the company was reaming to run casing on No. 4 Surface, bottomed at 6,080 feet. On the extreme western part of the field, the company is building derrick for No. 1 Cannon, located 330 feet east of the southwest quarter of a 50-acre tract in the H.T.&B. Survey No. 36.

On the west side of the South Houston field, Harris County, Stanolind Oil & Gas Co. announced location for No. 1 Griffin. It is a south offset to Sterling Oil & Refining Co.'s No. 1 Dean in Tract 153, H.T.&B. Survey No. 36. District No. 27, located in Lot 1, Block 102, was being completed at the close of the week. The operators recovered 650 feet of oil on a 10-minute drill stem test made from 4,515-4,622 feet and 9⅝-inch casing was cemented at 4,512 feet. This is the only active test in the field and it completes the company's original development program.

At the Pickett Ridge field, Wharton County, Texas Co. has completed No. 6-A Pierce at 4,710 feet for an initial production of 26 bbls. per hour through a one-quarter inch choke with tubing pressure 550 pounds and casing pressure 850 pounds. Seven-inch casing was cemented at 4,703 feet. Location was made for No. 8-A Pierce in the I.&G.N. Survey No. 39, and the derrick is being built.

Brine Disposal

MUSKEGON, Mich., Dec. 23.—Michigan oil producers were notified last week the state stream control commission will not permit the pollution of any now uncontaminated streams with oil field brine. The notice specificially warned operators in the Crystal field, Montcalm County, against dumping brine into streams of the Grand River watershed. Pumping brine into abandoned wells was recommended as a means of averting stream contamination.

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H103

Eastern Field Report

ORISKANY TEST FINDS UPPER PAY IN KANAWHA COUNTY

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Dec. 23.—Among the deep tests in West Virginia, a rather unexpected completion was made in the test on the W. L. Burdette farm in Elk district, Kanawha County, which is being drilled by the Columbian Carbon Co. Gas was struck in the Shale Rock at 4,579-84 feet which has a volume of 962,000 feet a day and the well completed at a total depth of 4,584 feet. This is several hundred feet above the Corniferous lime and the gas in this pay will be used and if it plays out, the test will be drilled on down to the Oriskany sand. The test is located about 3,400 feet northwest of the good Oriskany sand gas well on the G. and D. Copenhaver farm and on a branch of Little Sandy Creek.

During the past week in the lower Eastern fields, 25 operations were completed and the result was 13 gas wells, six dry holes and six producers with an initial daily production of 58 bbls. Most of the new production is in Southeast Ohio.

SOUTHEAST OHIO

Near Albany in section 13, Lee district, Athens County, the Albany Gas Co. drilled a test on the Everett White farm through the Second Cow Run sand to a depth of 400 feet and it was a dry hole.

In Guernsey County, J. L. Bebout and others completed a test on the Verna A. Quillan farm in section 10, Wheeling Township, in the Niagara lime at a depth of 3,547 feet. It is making 20 bbls. a day and has not been shot.

In Knox County, D. C. Highman and others drilled a test on the Jennie Hayes farm in section 14, Clay Township, through the Berea sand and there is a very small showing of oil. It is doubtful if it will be put to pumping.

In Licking County, Ralph Brothers, Inc., completed No. 16 on the Boy Scouts farm in section 22, Franklin Township, in the Berea sand, at a depth of 60 feet. It 9is showing for a 2-bbl. pumper.

In Medina County, the Shamrock Oil Co. completed No. 10 Isaac Meyers, Tract 3, Lot 20, Chatham Township, in the Berea grit at a depth of 501 feet. It produced 10 bbls. the first day after shot.

In Perry County, there were two completions and a dry hole. In the SE quarter of section 7, Reading Township, the Ohio Fuel Gas Co. completed a test on the Frank Winegardner farm in the Berea sand at a depth of 930 feet. It is a gas well gauging 500,000 feet a day. In the NW quarter of section 9, same township, this company completed a test on the Michael Emmert farm in the Clinton sand at a depth of 2,830 feet. It is also a gas well and gauges 450,000 feet a day. In the SE quarter of section 28, Monroe Township, Thistle Oil Co. completed No. 10 Carlos C. Stotler in Berea sand at a total depth of 1,100 feet, and it was a dry hole.

In section 28, Madison Township, Columbiana County, the Natural Gas Co. of West Virginia has started drilling on the farm adjoining the William Jenkins farm on which they have a very good Oriskany sand gas well. It is not expected that this will be drilled down to the Oriskany formation sand at present but will be completed in the Berea sand if gas is found. A 10-inch hole will be drilled down to the Berea sand so that it may later be deepened to the Oriskany. James M. Galey is drilling No. 2 Lyons to the Berea sand. No. 1 on this farm was a gas well gauging about 500,000 feet a day.

SOUTHWEST PENNSYLVANIA

John Galey and others test on the William Graham farm in South Beaver Township, Beaver County, is finally listed as a completion. The casing was cemented in the Corniferous lime about 20 feet above the Oriskany sand and the well tubed. After being shut in, a gauge of the rock pressure showed slight in excess of 1,900 pounds with a natural valume of nearly a million feet a day. The water in the bottom of the Oriskany sand can be taken care of with a siphon but it may be necessary later to cement the bottom of the hole to prevent the test drilling itself in deeper in the water.

In the deep test of the Carnegie Natural Gas Co. on the Gertrude Scott farm in South Shenango Township, Crawford County, no additional hole was made. Casing is being run to the bottom of the hole which is 4,043 feet. Water came in from the lower part of the Newburg sand.

On Chestnut Ridge, the test of William Snee and others on the Summit Hotel property in South Union Township, Fayette County, the tools are now down 5,280 feet. No additional gas has been struck.

Other Operations

A fair producer is being completed by the Carnegie Natural Gas Co. on the John Dodd farm in South Franklin Township, Washington County. The top of the Fifth sand was at 2,852 feet with oil showing at 2,859-2,860 feet or the top pay. It filled up 600 feet in three hours, and has the appearance of a 20-bbl. well.

In this township, E. H. and J. B. Tague shut down at 2,302 feet in the test on the Hiram McClain farm. The hole is being cemented.

William Bungard & Co. have started drilling on the Clyde Hineman farm. H. G. Whitfield and others remains shut down on the Judson Iams farm.

In Amwell Township, Washington County, Moore-Orrill & Co. are fishing the tools in the No. 6 on the G. L. Walker farm at a depth of 700 feet. The New Oil & Gas Co. is drilling at 2,365 feet on the Clarrisa Ramsey farm and have reached a depth of 900 feet on the George Thomas farm.

In East Findley Township, Washington County, Parkinson and Dague reached 840 feet on the Chris Ealy farm and shut down. The Pittsburgh Coal was at 757 feet. In West Findley Township, the Natural Gas Co. of West Virginia has reached a depth of 1,887 feet in the test on the J. W. Earnest farm.

In Green County, J. I. Eddy and others are drilling at 1,950 feet on the Charles Fordyce farm in Gilmore Township. S. B. Clovis is down 1,725 feet in the test on the Charles B. Fordyce farm.

In Richhill Township, Greene County, Lewis & Co. are drilling at 1,200 feet on the Samuel Chess farm. Burleigh Wright has started the rig for a test on the D. C. Yoders farm. In Springhill Township, James H. Null, agent, is drilling at 1,220 feet in the No. 3 on the David Null farm. In Morris Township, the Penn Ohio Oil & Gas Co. is drilling the test on the Frank Toland farm at 1,220 feet. Wasmuth & Co. are hauling in the tools to drill deeper the W. A. Rayle well.

WEST VIRGINIA

There were only two small producers completed in West Virginia during the week. In Roane County, K. M. Hunt and others completed a test on the Goldie Riddle farm in Curtis district at a total depth of 1,783 feet. The Salt sand oil showed at 1,764-80 feet and after a 60-quart shot it is making 5 bbls. a day.

In Marshall County, the Union Gasoline & Oil Corp. drilled deeper the No. 1 on the J. R. Mackey farm in Liberty district down to the Fifth sand, depth 3,167 feet. It will make a half barrel pumper.

In Ritchie County, the West Turn Oil Co. No. 4 A. J. Glass farm in Clay district, Ritchie County, is now producing about 65 bbls. a day. In Murphy district, the No. 1 of the Hope Construction & Refining Co. on the Agnes Putnam farm was cleaned out and treated with acid. Production increased from 1 to 10 bbls. a day.

Gas Wells

In Boone County, the Pure Oil Co. drilled a test on the Lafollette, Robson & Prichard Tract B and C in Sherman district to a total depth of 2,842 feet. It was a dry hole. The Big Lime was found at 2,126-2,379 feet; Big Injun at 2,379-2,400 feet; Weir sand at 2,485-2,675 feet, and Berea was at 2,832-38 feet.

In Cabell County, Martin & Swanson completed a 220,000-foot gasser on the Henry Childers farm in McComas district at a depth of 3,371 feet. The gas showing was at 3,083-3,285 feet.

In Doddridge County, the Clifton Oil & Gas Co. completed a gas well on the Dallas Powell farm in McClelland district in the Big Injun sand at a depth of 2,140 feet. It gauged 400,000 feet a day.

In Gilmer County, the Clifton Oil & Gas Co. completed a small gas well on the D. M. Steinbeck heirs farm in Troy district at a depth of 1,670 feet, Maxon sand.

In Kanawha County, Holly H. Osborne completed No. 5 Goshorn and others, in Big Sandy district at a total depth of 2,270 feet. The Big Lime was placed at 1,856-1,995 feet; the Big Injun sand at 1,995-2,012 feet; the Weir sand at 2,156-2,270 feet, with gas showing at 2,156-76 feet and having a volume of 150,720 feet a day. It was not shot. There was also a small showing of oil. It is located on Rich Creek about 1,800 feet west of the No. 4.

In Lincoln County, H. A. Waggoner, trustee, deepened No. 1 Nettie May in the Sheridan district to 3,275 feet. Drilling was started at 2,144 feet and the Brown shale was at 2,540-3,260 feet with about 78,000 feet of gas at 3,175 feet.

In Ritchie County, the Mudlick Oil & Gas Co. completed a second test on the Alford B. Collins farm in Union district in the Injun sand at a depth of 1,900 feet. It is a small gas well.

In Roane County, E. H. Brannon drilled a test on the George L. Nichols farm in Smithfield district through the Injun sand and it was a dry hole at 1,861 feet. There was a show of gas at 1,841 feet.

In Wetzel County, C. B. Lewis and others completed a test on the John Blatt farm in Proctor district at a depth of 2,220 feet, with gas sand at 2,211-18 feet which produced 429,200 feet a day.

In Wirt County, Glen W. Roberts completed No. 4 W. C. McConaughey, in the Burning Springs district in the Keener sand at a depth of 1,748 feet. It is a gas well gauging 900,000 feet a day. In this district, R. C. Waggoner and others completed No. 3 on the Morris Richter farm at 2,060 feet. It is good for 116,000 feet of gas a day and is also making about 1 bbl. of oil a day.

In Wood County, Charles S. and Lillian Smith drilled No. 10 Tim McAtee in Union district through the Salt sand to 1,200 feet. It was dry. In Williams district, E. C. Hartman and others have a machine on the Fred Delancy farm for No. 3.

Deep Tests

In Elk district, Kanawha County, Columbian Carbon Co. is drilling in the Corniferous lime in the second

test on the G. and D. Copenhaver farm. The depth is 4,842 feet and the top of the lime was at 4,810 feet. The top of the Oriskany is expected at about 4,900 feet. This company has a rig standing for No. 3 and has spudded in and started drilling No. 4 on the same farm. The company is also building a rig for a test on the W. H. Baxter and others lease. V. C. Smith and others resumed drilling the test on the Island at the mouth of Coopers Creek.

In Malden district, Columbian Carbon Co. is down 3,910 feet in the test on the M. J. Dearing heirs farm. Godfrey L. Cabot, Inc., recovered one string of tools in No. 9 Campbells Creek Coal Co. and is drilling by the other. The depth is 1,265 feet. On the N. B. Tompkins test, this operator has reached 1,537 feet, and on the William Tompkins heirs farm has spudded in and started drilling. The W. D. Lewis test is shut down fishing at 1,870 feet.

In Loudin district, Kanawha County, the Columbian Carbon Co. has reached a depth of 4,110 feet on the S. H. Hoge farm. The test of Godfrey L. Cabot, Inc., on the A. F. Vorholt farm appears as a failure in the Oriskany sand. Same operator is drilling at 1,557 feet on the Kanawha Land Co. No. 2.

In Union district, the test of Godfrey L. Cabot, Inc., on the Alberta Putney farm is drilling at 4,900 feet and through the sand. It does not appear as a likely producer of gas. In Poca district, W. O. Zeibold and others set casing to 1,730 feet and have resumed drilling.

Other Operations

In Cabell County, the Kanawha West Virginia Gas Co. is rigging up a test on the W. E. Farley farm in McComas district and has made a location on the R. N. Heath farm. R. H. Adkins has started drilling on the T. J. Gill estate. The West Virginia Gas Co. has made a location for No. 3 on the John J. Porter farm. The Kanawha West Virginia Gas Co. has made a location on the Albert Keenan farm.

In Calhoun County, Massey & Jarvis are rigging up on the Homer Miller farm in Washington district. Harley Jarvis and others have reached 1,260 feet on the A. A. McClain farm.

In Lee district, F. F. McIntosh has a rig standing on the Ray Parsons farm.

In Clay County, J. J. Shore has started drilling on the Riley M. Ayle farm in McElroy district. The Virginia Gasoline & Oil Corp. has started drilling No. 30 on the Brown, Swan, Gorshorn & Geary tract in Henry district. In Pleasant district, the Elk River Gas Co. is down 1,500 feet on the Thompson Land & Coal Co. and reached a depth of 1,685 feet on the T. W. Keith farm and shut down with a fishing job.

In Ritchie County, Pyles Brothers made a location on the M. V. Haught farm in Murphy district. Evelyn Oil & Gas Co. has a location on the U. G. Bonnett farm. Mosser & Collins have a rig standing for a test on the Ada Horner farm. Patterson & Pope are drilling a second test on the H. W. Patterson farm. William Shroeder has a location for No. 4 J. A. Hays all in the Murphy district. In Clay district, Benjamin Gilmore and others are drilling No. 1 F. and W. Hayhurst. Carner and others are drilling on the Jennie Rogers farm. W. A. Bickerstaff has a rig standing on the S. A. Kirkpatrick farm.

In Roane County, Henderson Oil Co. is building a rig for No. 2 C. J. Burdette in Curtis district. H. H. Staats is building a rig for No. 3 R. R. Petty. Murray & Mace are rigging up on the G. W. Stalnaker farm in Spencer district.

In Wirt County, Batton & Enoch are drilling at 1,020 feet on the J. G. Watkins farm in Reedy district. In Spring Creek district, O. D. Jones is down 1,700 feet on the Laura DeVall farm.

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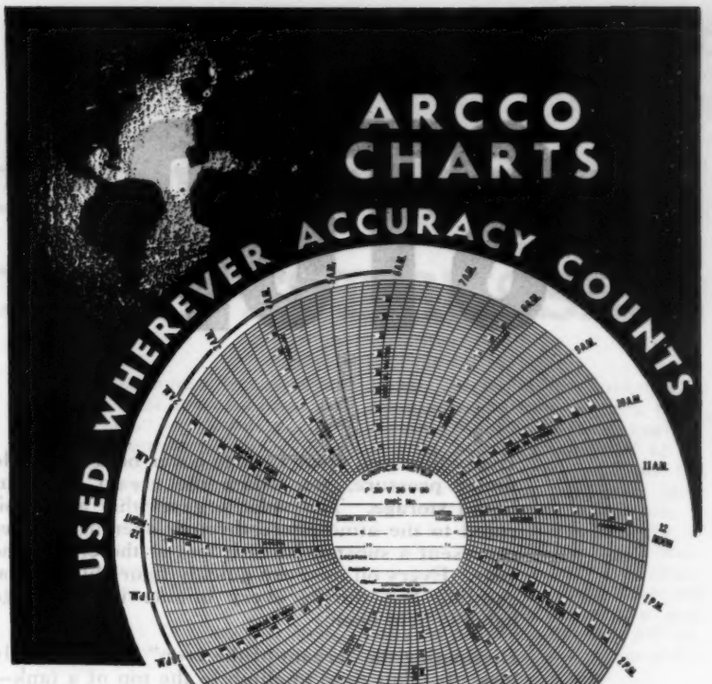
L. G. Cowles and P. M. Honnell, geophysical division, Texas Company, Houston, Tex.



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Kansas Developments

OPEN POOL WITH 884-BARREL WELL IN SOUTHWEST RUSSELL

By JAMES McINTYRE

Central Petroleum Co. No. 1 Boxberger, NW cor. section 36-15s-15w, recent Oswald lime discovery in southwestern Russell County, is completed for a potential of 884 bbls. of oil after using 2,000 gallons of acid. Oswald lime was topped at 3,137 feet with oil showing up at 3,145 feet and the big pay coming from 3,298 to 3,-155 feet, total depth. This newly opened pool is located 3½ miles southeast of the Donovan pool, the nearest production.

Hartman & Blair No. 2 Fink, SW cor. section 15-14-14w, is a dry hole at 3,391 feet, in granite. Oswald lime at 3,057 feet produced 80 bbls. of oil and 21 bbls. of water in 24 hours but when acidized the hole filled with water, Siliceous lime was missing and the test logged granite wash at 3,310 feet and topped the granite wash at 3,370 feet.

Signal Oil Co. No. 1 Weeks, SE NW section 34-15-13w, had Siliceous lime from 3,333-37 feet, total depth, pumping 265 bbls. of oil and 45 bbls. of water in 16 hours on its potential test. It is completed.

Russell County first reports follow: R. G. Berry and others No. 1 Cook, NE SE section 19-11-13w, is a wildcat location; Darby Petroleum Co. No. 1 Rexroot, SW SE SW section 30-14-14w, location; Stearns & Streeter No. 2 Miller, NW NE NW section 31-14-13w, moving in material; and Bailey & Bailey No. 1 Galliart, NE SE SW section 34-15-12w, building rig.

Phillips Petroleum Co. and Indian Territory Illuminating Oil Co. No. 1 Wineteer, SW SW SE section 19-13-14w, had 2,165 bbls. of oil in the hole from Oswald lime at 2,972 feet, total depth. Eight-inch casing was set at 2,972 feet. The well had not been tested. Same companies No. 1 Jellisch, NE NE NW section 30-13-14w, had 1,300 feet of oil in the hole. Eight-inch casing was set at 3,279 feet. It had not been tested.

Sinclair Prairie Oil Co. No. 2 Sellens, NW NW NE section 35-15-13w, which was a hole full of water at 3,361 feet, was plugged back to 2,883 feet and swabbed 45 bbls. in three hours.

Ellsworth County

In the South Lorraine pool in Ellsworth County, C. B. Davis and Winkler & Koch's No. 7 Melchert, NE cor. section 23-17-9w, is completed in the Siliceous lime at 3,190-94 feet, total depth, pumping 215 bbls. of oil in 21 hours on its potential test. It was making approximately 10 per cent water with the oil.

P. H. Joseph No. 2 Kasper, C NW NE section 6-14-9w, in northern Ellsworth County, is completed for 750,-000 feet of gas in sand at 1,383-89 feet. A hole full of water was had at 1,400 feet, total depth, and the test was plugged back to 1,394 feet and shut in as a gasser.

Phillips Petroleum Co. No. 5 Melchert, SE SW NE section 23-17-9w, in the Lorraine pool, filled 1,750 feet with oil in two hours at a total depth of 3,206 feet. Texas Co. No. 7 Dees, NW SE NW section 23-17-9w, was acidized at 3,184-88 feet and pumped 163 bbls. of oil and 15 bbls. of water in 24 hours.

Stafford County

In the Richardson pool in Stafford County, Stanolind Oil & Gas Co. No. 2 Heyen "B," NE NW NE section 31-22-11w, potentialed 1,139 bbls. of oil on the pump on its 24-hour production test. Seven-inch pipe was set on top of the Siliceous lime at 3,529 feet with total depth at 3,535 feet.

There was only one operation started in Stafford County the past week, it being L. A. Farris and others No. 1 Snyder, SE NW section 3-21-11w, a wildcat trend play.

Rice and Barton Counties

Rice County had two completions: Gypsy Oil Co. No. 3 Hartle, SE NW NW section 15-20s-9w, in the ever-growing Keesling pool, southeast of the Chase pool, topped Siliceous lime at 3,211 feet; first oil at 3,223 feet; total depth 3,240 feet. It pumped 818 bbls. of oil in 24 hours naturally and 882 bbls. of oil on its potential test after acid treatment of 1,000 gallons.

In the Rice County part of the Steckel pool, Mid-Continent Petroleum Corp. No. 1 Risse, NW NE NE section 6-20-10w, is a completion at 3,-323 feet, total depth, in the Siliceous lime, pumping 486 bbls. of oil on its potential test. It is an old well deepened.

Rice County first reports follow: Vickers Petroleum Co. and others No. 2 Guldner "A," NW NE NW section 16-18-9w, rotary rig; R. E. Days No. 1 Jacobson, NW SW section 2-21-6w, rig; Mid-Continent Petroleum Corp. No. 2 Risse, SW NE NE section 6-20-10w, moving in materials, and, Sinclair Prairie Oil Co. No. 3 Graham, NW SW SE section 16-20-10w, moving in materials.

Magnolia Petroleum Co. No. 2 Steckel, NE SW NE section 1-20-11w, in the Steckel pool, Barton County side, is completed for a very good well in Siliceous lime at 3,274-89 feet, total depth, pumping 1,072 bbls. of oil on its 24-hour potential test. Its final gauge came after using 2,000 gallons of acid which jumped production from 650 bbls.

Barton County's new work was all in the vicinity of the Steckel pool. Mid-Continent Petroleum Corp. No. 2 Matzek, SW SE SE is a location, and one location to the west of its No. 1 Matzek which extended the pool one-half mile northwest; Mid-Continent Petroleum Corp. No. 1 Schmidt, SE SW section 36-19-11w, is a cellar; Gypsy Oil Co. No. 1 Wendel, NE cor. section 36-19-11w, rotary rig; Texas Co. No. 1 Ziegenbusch, NE cor. section 23-19-11w, location, and, John Burton No. 1 Wendel, NE cor. section 13-19-11w, is a rig up and a wildcat location.

Estimated Production

Estimated daily average production of Kansas for the week ending December 21 and for the preceding week follows:

	Barrels	
	Dec. 20	Dec. 13
Oxford City	6,700	6,675
Burrton	19,150	19,400
Ritz-Canton	7,600	7,900
Hollow-Nikkell	5,600	6,125
Voshell	3,925	4,075
Ellsworth County:		
Lorraine-So. Lorraine	8,550	8,168
Other pools	1,930	2,208
Rice and Barton Counties:		
Chase	10,700	11,390
Raymond	2,525	2,450
Steckel-Isern	4,540	5,225
Keesling	2,180	2,315
Misc. Rice	3,888	3,392
Misc. Barton	1,465	1,347
Russell County:		
Fairport	3,160	3,135
Gorham	3,720	2,550
Russell	3,201	2,950
Other pools	2,939	1,755
Sedgwick:		
Valley Center	1,430	1,400
Greenwich	1,530	1,500
Robbins	1,885	1,810
Eastborough	980	950
Other pools	625	675
Ellis County	494	482
Kingman County	840	873
Stafford County	1,709	1,689
Greenwood County	10,900	10,890
Butler County	17,800	17,700
Other fields	18,304	19,071
Total	148,250	147,100

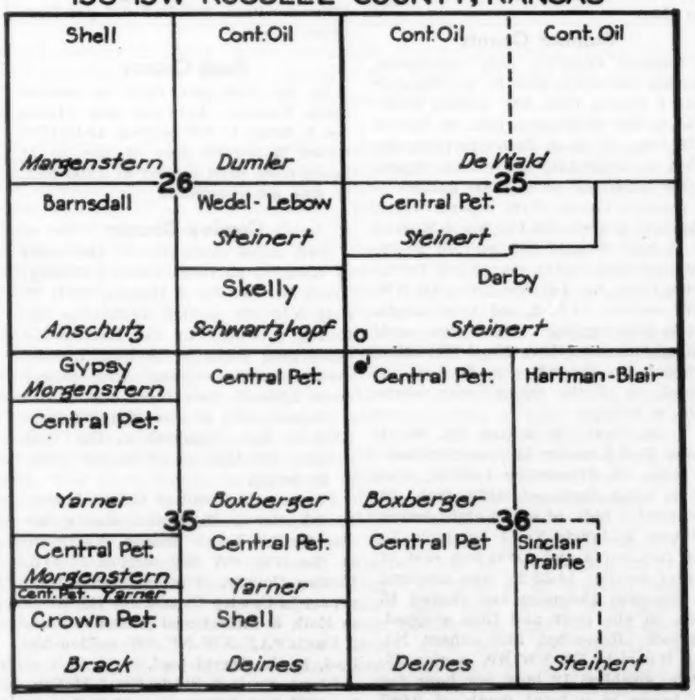
Near Completions

Mid-Continent Petroleum Corp. No. 1 Matzek, SE cor. section 25-19-11w, on the Barton County side of the Steckel pool, swabbed 401 bbls. of oil in 18 hours, following an acid test in Siliceous lime, but it was not yet completed. On the Rice County side of the pool, Phillips Petroleum Co. and Indian Territory Illuminating Oil Co. No. 8 Krampe, 1,095 feet north and 220 feet west of SE cor. section 31-19-10w, pumped 1,255 bbls. of oil in 24 hours from Siliceous lime and No. 9 Krampe, 1,420 feet from south and 795 feet from east lines of SE quarter section 31-19-10w, pumped 651 bbls. in 24 hours from the same formation. Neither well was yet a completion.

Keithe and others No. 5 Volkland, SW NW SE section 20-19-9w, made a potential production of 287 bbls. in 24 hours, but it will be acidized in Siliceous lime in the hope of better results.

Lebow and Bennett No. 1 Steckel, NE NE SW section 1-20-11w, in the

PORTION OF
15S-15W RUSSELL COUNTY, KANSAS



Central Petroleum Company No. 1 Boxberger, in section 36-15-15w, which opened a pool 3½ miles from the nearest production

(Courtesy of Mid-Continent Map Co., Wichita)

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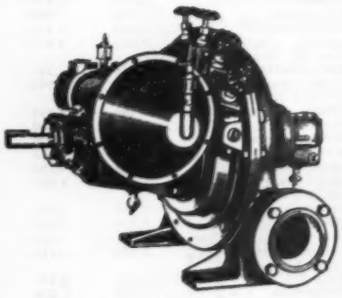

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1945

Steckel pool, Barton County, swabbed 25 bbls. of oil per hour after a 6,000-gallon acid treatment producing from Siliceous lime.

Saco Oil Co. and Gypsy Oil Co. No. 1 Foote, NW SE NE section 7-20-9w, Rice County, pumped 43 bbls. per hour at a total depth of 3,289 feet.

Grant County

In southwestern Kansas, 10 miles removed from the nearest production in the Hugoton gas field, Piney Oil & Gas Co. completed No. 1 Kennedy, C SW section 10-29-36w, Grant County, for 10,000,000 feet of gas at a total depth of 2,740 feet. Top of the pay horizon was not learned; however, the 8-inch casing was set at 2,482 feet.

Reno County

In the north end of the Burrton pool in Reno County, McPherson Gas Co. and Shell Petroleum Corp. No. 2 Goering, NW SW NE section 1-23-4w, topped the chat at 3,253 feet and at 3,358 feet, total depth, was completed for 241 bbls. of oil and 5 bbls. of water after a 1,000-gallon acid treatment of that formation.

The Stone pool in Reno County was partially defined on the northeast when the Texas Co. No. 2 Carmichael, C NE SW section 10-24-4w, came in for 1,118 bbls. of oil, but accompanied by nearly 400 bbls. of water. It had a hole full of oil at 3,351 feet with the chat topped at 3,310 feet, and showing no water but when deepened to 3,372 feet and acidized with 2,000 gallons it started producing water.

On the east side of the Burrton pool, Charles Nye and Sinclair Prairie Oil Co. No. 1 Gouldner, SW SE section 19-23-3w, topped chat at 3,251 feet and at 3,354 feet, total depth, is completed for a potential of 312 bbls. of oil, flowing its production after treatment of 2,500 gallons of acid.

Olson Oil Co. and Shell Petroleum Corp. No. 6 Roberts, C NE NW section 25-23-4w, Burrton pool, Reno County, was a hole full of water at 3,641 feet and was to be plugged back to chat.

Sumner County

Sumner County's only completion during the week was E. B. Shawver No. 1 Curtis, CSL NW section 28-31-1w, in the Wellington pool. It flowed 150 bbls. of oil in 24 hours from the chat at 3,659-3,708 feet, total depth, after acidizing with 3,000 gallons.

Sumner County first reports were: Sinclair Prairie Oil Co. No. 4 Kamis, C S half S half SW section 28-31-1w, building rotary rig; Shell Petroleum Corp. No. 1-C Scroggins, SE NW SW section 14-32-2, old total depth 2,098 feet, rigging up to deepen, and, Houghton and others No. 1 Christian Church, in the SE cor. W half of Block 40 of the Oxford city townsite, a cellar.

T. M. Deal Oil & Gas Co. No. 1 Long Bell Lumber Co., approximately CSL SE SE section 11-32-2e, was at a total depth of 3,078 feet. It swabbed 7 bbls. of oil in eight hours. Stanley & Jarvis No. 1 Scroggin, 1,310 feet north and 1,000 feet east of center section 14-32-2e, was acidized in Simpson Dolomite and flowed 15 bbls. in one hour and then stopped. Carlock, Rosenthal and others No. 1-A Wenrich, NE NW SW section 23-32-2e, swabbed 12 bbls. per hour for 12 hours at a total depth of 2,985 feet.

Butler County

Cox & McGinnis No. 1 Huston, 850 feet from north and 990 feet from west lines of SW section 6-25-4, Butler County, pumped 140 bbls. in 24 hours from a total depth of 2,680 feet. It was not yet completed.

McPherson County

Continental Oil Co. No. 1 Jones, SE cor. section 31-21-1w, McPherson County, filled 800 feet with fluid, one-third water, in 12 hours, at a total depth of 3,313 feet, to which depth it had been plugged back from 3,345 feet.

Woodson County

Coulter, Davidson and others wildcat, No. 1 Paske, NW SE section 25-25-13, in western Woodson County, is dry and abandoned at 1,500 feet. No record of the formations encountered was available.

Marion County

Milton and others staked location for a wildcat in southern Marion County, NW NW SE section 17-21-3, to be known as No. 1 Young.

In the Hillsboro pool, Aladdin Petroleum Co. was building rig for No. 2 Rempel in the SE cor. section 12-19-2.

Greenwood and Coffey

In Greenwood County, Mossman and others were drilling at 1,120 feet at their No. 1 Heath, NW SE SE section 1-24-11.

In Coffey County, Spencer and others No. 1 McLean, C E half SW SE section 1-23-14, was rigging up, and, Hinze and others No. 1 Stuckey, SE NE NW section 12-23-14, was a location.

Ellis County

Two new operations were reported in Ellis County. They were: Winkler & Koch and others No. 1 Bemis, NE cor. section 21-11-17w, a cellar, and, Margay Oil Co. No. 1 Bemis "B," SW cor. section 15-11-17w, drilling at 760 feet.

Tom Palmer and Storm King Oil Co. No. 1 Carl Ruder, NW NW NE section 17-15-18w, Ellis County, had 2,800 feet of oil in the hole from Siliceous lime, but had not yet been given a test.

Rush County

In the Otis gas field in eastern Rush County, Aylward and others No. 1 Mohr, C NW section 13-18-17w, tested 22,500,000 feet of gas in 24 hours from sand topped at 3,493 feet. It was not completed.

Cowley County

Two miles southwest of the town of Rock in northern Cowley County, Trees Oil Co. No. 3 Houser, CEL W half NW SE section 19-30-4, is the fourth producer in the Bartlesville sand pool recently revived by the same company. Sand was logged from 2,855-73 feet, total depth, and a 20-quart shot of nitro applied from 2,855-73 feet, resulted in the well gauging 328 bbls. of oil on the pump in 24 hours.

Playing the trend of the pool mentioned above, M. Baden has cellar dug for his No. 1 Houser, a wildcat in the NW SW NE section 13-30-3 Cowley County. The only other first report in Cowley County for the week is Roth & Faurot and Texas Co. No. 2 Davis "A," NW NE SW section 35-30-4, in the David pool.

Lloyd, Frost & Study No. 1 McKinley, NE NW NE section 33-31-3, was a hole full of oil at a total depth of 3,338 feet, the oil coming from Siliceous lime topped at 3,324 feet.

COFFING HOISTS

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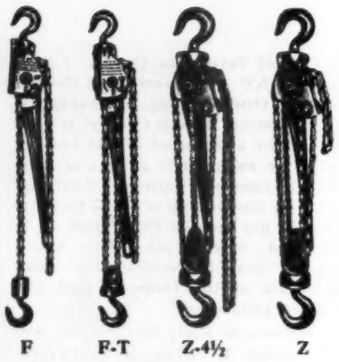

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These hoists operate on a simple ratchet principle. The load is raised or lowered with short pumping strokes of the handle. A small lever on the side of the hoist frame controls the movement, up or down. The load chain can be freed for fast adjustment, up or down, if there is no load on the hoist. Coffing ratchet hoists can be used in any position and have been factory tested to operate at 100% over rated capacity.

The above picture shows a Coffing model Z, six-ton hoist being used in a Texas oil field to lift a pipe line for cleaning.

COFFING HOIST CO.
DANVILLE • ILLINOIS

Oklahoma Operations

By JAMES McINTYRE

TUBING TEST OF JESSE WELL PROVES IT A BIG PRODUCER

The Carter Oil Co. No. 1 John Thompson, in section 34-2-9, Coal County, Oklahoma, which has become known as the Centrahoma test, stood on Monday with 3,300 feet of mud, topped by 2,200 feet of salt water at a total depth of 6,710 feet. The well is bottomed in McLish sand, but what sand the water is coming from could not yet be determined. The crew had recovered 9 feet of core of very soft, dark brown sandy dolomite carrying a stain of light oil at 6,699-6,705 feet and 6,705-10 feet, total depth. The water appeared when the crew was bailing out the hole.

Continental Oil Co. No. 1 McCarty, Jesse discovery, in southern Pontotoc County, took a tubing test of production; another major company bought into the Jesse play; a twin well is staked in the Fitts pool with the Basal McLish sand its probable objective; the U. S. Indian Department steps into the Fitts pool; a possible deep test proposed 1½ miles northeast of the Fitts pool; Oklahoma City well rated a 13,000-bbl. gusher; an Edmond well refuses to flow naturally; another deep test started in southern Oklahoma in Jefferson County and disappointments registered in the Britton and Moore pools.

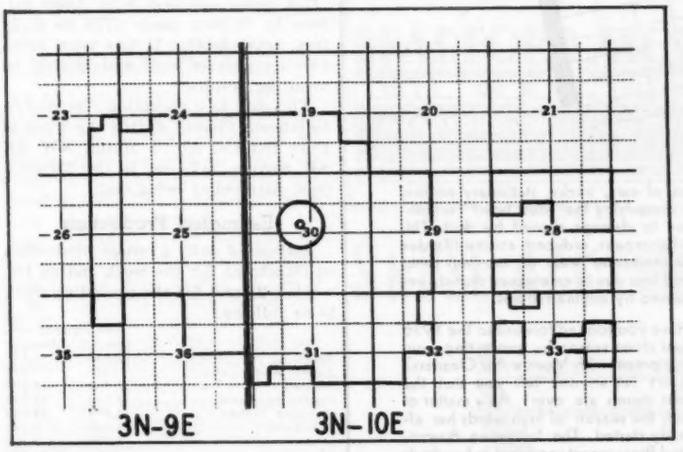
The Shell Petroleum Corp., at least, is not prone to await the outcome of the Centrahoma wildcat and is making ready to test its 3,000-acre block some 8 miles northeast of the Carter Oil Co. and associates No. 1 Thompson. Cellar and pits have already been dug for a deep test of the block and it will be known as No. 3 Hill, Nos. 1 and 2 wells on the lease being shallow sand gas wells.

Pontotoc County

At Jesse, Pontotoc County, Continental Oil Co. tested its discovery well, No. 1 McCarty, in section 12-1n-7, and it flowed 1,803 bbls. in nine and three-quarter hours, or at the rate of 4,400 bbls. daily, through 2½-inch tubing. It was the first tubing test since it was brought in.

The Gypsy Oil Co. has gone into the Jesse area fairly strong within the last few days and has purchased a half interest in nearly 1,200 acres from the Ramsey Petroleum Co. The purchases cover parts of sections 1 and 2-1n-7e, 36-2n-7e, and 6, 7, 8, 17, 22, 26 and 27-1n-8e, paying around $500,000 for the half interest.

The most interesting development in the Fitts pool during the past week is the staking of a twin well to the Moore and others No. 3 Atkins, SW NW NW section 32-2n-7, which may be the beginning of a twin-well campaign in the pool, something operators in the field have tried to prevent. A trick of fate can be held responsible for this event. In the first place E. H. Moore and others No. 3 Atkins was the discovery well of the Basal McLish or Wilcox sand in the pool. The south offset faulted and missed the McLish member and became a dry hole in the Arbuckle. When this occurred, No. 3 Atkins, due to certain rules and regulations of the Corporation Commission providing for the manner and means a well in the pool can be produced, and a code of ethics among operators, was plugged back to the upper McLish section and completed, shutting off the "big" pay. No sooner had No. 3 Atkins taken its new potential in the upper McLish than the southwest offset, Fleetborn Oil Co. No. 2 Smith, NE SE NE section 31-2n-7, cut out the upper section almost entirely and came in a big Wilcox sand producer. This meant that Moore and others' Atkins lease would be drained and consequently a twin well is now proposed to No. 3 Atkins. It will be No. 3-A in the SW NW NW section 32-2n-7.



Shell Petroleum Corp. block, northeast of the Centrahoma area and in Coal County, in an old shallow gas area. A deep test will be drilled in section 30-3n-10e

A most unfortunate thing has occurred since the completion of Crosbie, Inc., No. 1-A Burris, located in the NE SE NW section 27-2n-7, the recent 1-mile extension to the east for the Bromide production in the pool. The U. S. Indian Department has decided that the well is located on an old but abandoned railroad right of way which was lotted out prior to the allotment of the land, and is taking over the section of land comprising the right of way and proposes to put it up at auction.

About 1½ miles northeast of the Fitts Pool, H. W. Marcum is arranging to deepen his No. 1 Magnuson from 1,930 feet to the Cromwell sand horizon. In the event the Cromwell sand does not produce gas or oil, the test will be carried on down. It is located in the SW SE SE of section 23-2n-7.

During the week there were six wells completed in the Fitts pool, five of which were already producing wells deepened from the Bromide to McLish sand. They follow:

Carter Oil Co. No. 15 Richards, NW SW SE section 30-2-7, deepened from 4,135 feet to McLish, 4,130-4,390 feet, total depth. New potential 2,961 bbls.

Deep Rock Oil Corp. No. 4 Harden, SE SE NE section 30-2-7, deepened from 4,302 feet in Bromide to McLish at 4,235-4,442 feet, total depth: plugged back to 4,375 feet account of water and has a new potential of 690 bbls. of oil in six hours through tubing.

E. H. Moore and others No. 6 Craddock, SE NW SW section 29-2-7, deepened from 4,173 feet to 4,397 feet, total depth, establishing a new potential of 3,105 bbls.

Moore and others No. 2 Patrick, NE NW NE section 31-2-7, deepened from old total depth of 4,010 feet to 4,286 feet, total depth, getting a new potential rating of 3,587 feet.

Moore and others No. 2 G. Smith, NE NW NW section 31-2-7, deepened from 4,212 feet to 4,440 feet, total depth, and given a new potential of 3,126 bbls. of oil.

E. H. Moore and others No. 3-A Harper, NE SE NE section 29-2-7, logged Bromide at 4,070 feet; First sand 4,165 feet, Second sand 4,250 feet, McLish lime 4,290 feet and total depth 4,230 feet. Its potential is 3,091 bbls.

Other Pontotoc County completions for the week were in the Allen Pool. Sunray Oil Co. No. 3 (twin) Millner, NW SW NW section 16-5-8, is a dry hole at 970 feet, missing the shallow sand, and Mary F Oil Co. and others No. 2 Butler, C W half SW NE section 21-5-8, encountered only a small showing of oil in sand at 834 to 840 feet and is dry and abandoned at 875 feet, total depth.

New work in Pontotoc County follows: Carter Oil Co. No. 1 G. Smith, NE NW SW section 28-2-7, old total depth 4,151 feet, deepening at 4,157 feet; Carter Oil Co. No. 8 Harden, SE SW Section 30-2-7, old total depth 4,092 feet, moving in tools to deepen; Continental Oil Co. No. 1 Holkum, NW SE section 27-2-7, location; Fleetborn Oil Co. and Simpson No. 3 Wooley, NW NE SE section 28-2-7, rigging up rotary; Magnolia Petroleum Co. No. 2 Statler, NE SE SW section 28-2-7, moving in tools; Magnolia Petroleum Co. No. 4 Simpson, NW SE NE section 29-2-7, old total depth 4,233 feet, rigging up to deepen; E. H. Moore and others No. 3 Mack, SW SE section 28-2-7, location; E. H. Moore and others No. 1 Craddock, NW SW section 29-2-7, old total depth 4,204 feet, deepening at 4,278 feet; E. H. Moore and others No. 6 Harper, SW NW NE section 29-2-7, location; E. H. Moore and others No. 2 Schauers, SW NW section 29-2-7, old total depth 4,248 feet, building rig to deepen; E. H. Moore and others No. 1 Smith, NW cor. section 31-2-7, old total depth 4,262 feet, preparing to deepen; E. H. Moore and others No. 3-A Atkins, SW NW NW section 32-2-7, a twin location and probable Basal McLish test; W. A. Delaney and others No. 1 Hillsdale, SE NE section 35-4-6, a wildcat location; Mexhoma Oil Co. No. 4 Butler, C WL SW SW section 21-5-8, drilling 624 feet; Sinclair Prairie Oil Co. No. 8 Ralls, 1,100 feet north and west of the SE cor. SW section 28-5-8, location.

Oklahoma County

British American Oil Co. No. 1 Piersol, one block east of the state capitol, in the SE cor. section 23-12-3w, Friday established a potential of 13,650 bbls. of oil with 20,000,000 feet of gas. The drill pipe was in the hole when the test was taken and operators were planning to deepen the well. The last four hours of the test showed it made, respectively, 554.49 bbls., 241.44 bbls., 545.52 bbls. and 933.14 bbls., a total of 2,274.59 bbls. The action of the well definitely proves a big structure underlies a large portion of the east side of the undeveloped part of Oklahoma City, and already a number of property owners in the area have filed a proposal at the City Hall to extend the drilling zone into the city's first ward, comprising about two blocks in width and one-quarter mile long.

Phillips Petroleum Co. No. 4 Traders Compress, NW SE SW section 36-12-3w, had the Wilcox sand at 6,288 to 6,385 feet, total depth,

DUST DEBTORS PAY $10,000,000 for engine damage

During the first four months of 1935, owners of cars, trucks, stationary engines and air compressors in six mid-western states (comprising the "dust bowl" region) lost an amount estimated at $10,000,000, due to damage caused by dust. This figure includes the cost of labor and materials for repairs, reduced engine life due to premature wear of moving parts, and loss due to emergency shut-downs caused by engine failures.

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Have you looked forward to the 1936 dust storm season by protecting your equipment with Vortox Air Cleaners? Don't let anyone tell you that the dust storms are over! As a matter of fact, the season of high winds has already started. The following Associated Press report appeared in hundreds of news-papers on Nov. 19, 1935:

"Dust returned today to plague portions of the Southwest! In the famed 'dust bowl' a swirling dust storm limited visibility to three hundred yards and made highway travel perilous."

It is not too late to protect your engines and compressors with Vortox. You still can keep your name off the list of 1936 Dust Debtors if you act promptly. A letter of inquiry will bring complete information regarding Vortox products. Such inquiry will not obligate you in any way.

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from which it is rated as a 7,900-bbl. well with 8,000,000 feet of gas. It was making about 1 per cent water.

Westgate Oil Co. No. 12 Carey, on Lot 25, Block 2, Phillips Mead Addition, in Oklahoma City, logged Wilcox sand from 6,359 to 6,523 feet, total depth, establishing a potential of 2,130 bbls. of oil on gas lift and is completed.

In the Edmond pool, Pure Oil Co. No. 3 Malm, NE NW SW section 30-14-3w, drilled into the Wilcox sand at 6,696 feet and at 6,710 feet, total depth, the hole was unloaded and washed in without success, when it failed to flow. It is standing, acidized with 5,000 gallons.

Sinclair Prairie Oil Co. and Slick-Urschel, Inc., No. 1 Kratky, SE NE section 19-13-3w, in the Britton pool, is completed as a relatively small oil well in Simpson dolomite at 6,666-6,730 feet with total depth of 6,778 feet. It was plugged back to 6,730 feet due to water in the bottom and acidized with 2,000 gallons, resulting in a flow of 100 bbls. of oil in 24 hours with 38 per cent water.

Another disappointment for the Britton pool is the action of Slick-Urschel, Inc., and others No. 1 Community Church, NE cor. section 30-13-3w, failing to produce much oil after being acidized with 5,000 gallons in Wilcox sand 6,770 to 6,772 feet, total depth. It has been given another shot of acid and is shut in awaiting results.

The only new operation reported in Oklahoma County during the week is Pure Oil Co. No. 5 Malm, NW SE SW section 30-14-3w, in the Edmond pool, with cellar being dug.

Estimated Production

Estimated daily average production of Oklahoma for the week ending December 21 and for the preceding week is as follows:

	Barrels	
	Dec. 21	Dec. 14
Allen	6,800	6,800
Asher-West Asher	975	975
Burbank	8,200	8,200
South Burbank	11,250	11,500
Balance Osage	24,000	24,000
Blackwell	4,825	4,850
Bristow-Slick	8,750	8,750
Chandler	4,050	4,100
Crescent	5,200	5,350
Cromwell	4,100	4,100
Cushing-Shamrock	12,300	12,400
Duncan district	4,150	4,180
Edmond	7,350	5,250
Fish	11,500	1 9'5
Fitts	36,400	37,125
Gray	1,675	1,675
Graham	4,050	4,050
Healdton	9,300	9,300
Hewitt	4,625	4,600
Holdenville	1,275	1,275
Keokuk	3,200	4,500
Konawa	1,700	1,750
Lucien	10,250	10,500
Marshall-Lovell	975	950
Oklahoma City	127,200	137,175
Papoose	1,175	1,175
Polo	3,225	3,450
Saskawa and townsite	3,525	3,000
Sholem-Alechem	3,850	3,850
Seminole field:		
Bowlegs	9,850	8,550
Carr City	5,525	6,350
Earlsboro	7,875	7,825
South Earlsboro	1,000	975
East Earlsboro	10,275	9,825
Little River	14,275	15,075
East Little River	1,150	900
Maud	1,000	1,000
Mission	2,800	2,750
Seminole	11,975	12,525
East Seminole	1,450	1,250
Searight	5,025	4,525
Total Seminole	72,200	71,550
St. Louis-Pearson	21,575	22,025
Tatums	4,050	4,075
Tonka-Garber-Thomas	5,850	5,850
Wewoka	3,675	3,700
Yale-Jennings	4,225	4,250
Other pools	55,650	56,320
Total Oklahoma	493,100	504,525

Cleveland County

Of considerable importance was the adverse outcome of two tests in the Moore pool of Cleveland County the past week, which resulted in the definite productive limit of the pool to the southwest and southeast. Sinclair Prairie Oil Co. and associates have abandoned No. 1 Community-Hussman, SW SE SW section 21-10-2w, one-half mile southwest of the discovery well in the pool, at 8,025 feet.

Hall-Briscoe, Inc., No. 1 Fant, SW NE section 27-10-2w, was dry at 7,511 feet, total depth, in Second Wilcox sand. The test has not been abandoned.

Garvin County

Charles E. Carter and associates were preparing to deepen their No. 1 Wood, NW SW SE section 5-4-3, from the old depth of 2,405 feet to the Wilcox sand and have cemented 10-inch casing at 84 feet and were waiting on the cement to set.

Panhandle Gasser

Out in the Oklahoma Panhandle in Texas County, the Cabot Carbon Co. completed No. 1 Mathews, located in the C SW quarter of section 8-3n-15e (Cimarron Meridian), for 4,300,000 feet gas from a lime topped at 2,675 feet and drilled to 2,760 feet, total depth.

Osage County

The South Burbank unitized block in Osage County received two good completions during the past week, as follows: Carter Oil Co. and others No. 6 Betty Higdon, located 1,295 feet from the south and 660 feet from the east lines of NE quarter section 3-25-6, flowed 4,022 bbls. of oil with 750,000 feet of gas in 24 hours, from Bartlesville sand at 2,712-2,805 feet, total depth; and their No. 8 Adlum, located 1,295 feet from the north and east lines NW quarter section 10-25-6, flowed 579 bbls. of oil with 15,000,000 feet of gas in eight hours from Bartlesville sand at 2,806-2,902 feet, total depth. Both are inside wells in the block.

The Atlantic pool had two Chat completions for a total of 320 bbls. of oil on initial tests. Sinclair Prairie Oil Co. No. 11, NE SW SW section 30-25-8, swabbed and flowed 200 bbls. oil from Chat encountered at 2,423 feet, with the hole bottomed at 2,474 feet and plugged back 2 feet. The well was shot with 30 quarts at 2,450-2,470 feet before the initial test. The Texas Co. and Sinclair Prairie Oil Co. completed No. 13, SW SW NW of section 30-25-8, for 120 bbls. oil flowing naturally from the Chat at 2,414-2,433 feet, total depth.

E. O. Platter abandoned No. 7, SW SE NW section 30-22-9, at 1,350 feet after encountering only a very small show of oil in the Layton sand topped at 1,340 feet.

Five new operations were started in Osage County, as follows: Sinclair Prairie Oil Co. No. 12, NW NW SW section 30-25-8, digging cellar; Champlin Refining Co. No. 4 Claremore, NE cor. section 17-24-7, location; Peters Petroleum Corp. No. 9, approximately NW SE NW section 32-24-9, deepening from old total depth of 2,482 feet at 2,504 feet with an estimated 2,500,000 feet of gas showing; Barnsdall Oil Co. No. 21, approximately C E half SE SE section 18-23-12, location; and Osage Lease Holding Co. No. 12, C S half SW NE section 6-22-11, rigging up to deepen from old total depth 1,667 feet.

Southwest of the Osage Nation, in Pawnee County, the Abeline Oil Co. encountered a hole full of water in its No. 1-A Armstrong, SE NW SE section 17-21-7, at a total depth of 2,966 feet and abandoned the well.

West of Pawnee in southwestern Noble County, the Carter Oil Co. is digging cellar for its No. 3 Pfeiffer, located in the C NE SE section 33-20-2w, South Lucien pool.

Hughes County

In Hughes County's Olympic pool, three oil wells and one dry hole were completed. Blackwell Oil & Gas Co. No. 2 Oliphant, SW SE SW section 1-9-8, flowed 480 bbls. of oil in 24 hours from the Senora sand at 1,700-56 feet after shooting with 40 quarts. George Manahan and others No. 3 Dixon "A," NW SW NW of section 12-9-8, flowed 251 bbls. oil in 24 hours from the Sonora sand encountered at 1,702 feet. The well was drilled to 1,774 feet and plugged back to 1,772 feet. A 70-quart shot preceded the initial test. The Potco Oil Co. completed No. 2-A McCaslin, NE NW NW section 12-9-8, for 450 bbls. of oil in 24 hours, flowing. The Senora sand, which was encountered from 1,689-1,775 feet, was shot with 80 quarts. The dry hole was completed by Fred Shores and others in No. 1-A Poldo, NE NE NW section 13-9-8, which was drilled to 1,882 feet, having penetrated 71 feet in dry sand.

Two new operations were started in the Olympic Pool: Blackwell Oil & Gas Co. No. 4 Oliphant, NE SE SW section 1-9-8, waiting for cement to set after running 10-inch casing at 42 feet; and Potco Oil Co. No. 4-A McCaslin, approximately NW cor. section 12-9-8, waiting with 10-inch casing set at 40 feet.

In northeastern Hughes County, W. P. Carravan has staked a location for a wildcat test in the SE NE SE of section 5-8-12, to be known as the No. 1 Meadors.

North of Hughes County in Okfuskee County, Ralvern Oil Co. has spudded in its No. 4 Johnston in the Dill pool. This test is located 660 feet from the north line and 1,760 feet from the east line of the NE quarter section 11-11-8.

Seminole County

In Seminole County's Sasakwa pool, Atlantic Oil Producing Co. and others abandoned No. 2 Diamond, NE NE SW of section 8-6-7, at 1,580 feet.

In the Little River pool, the Pure Oil Co. No. 7 Harjo, 250 feet from south and 375 feet from west lines of NE quarter of section 11-7-6, pumped 226 bbls. of oil in 24 hours from Crowell sand at 3,100-06½ feet.

The only other completion in Seminole County was in the Fish pool where Wynona Oil Co. and others deepened No. 2 Fish, SE NW NE section 30-7-8, from the Wapanucka at 3,046-69 feet to the Simpson dolomite at 4,131-69 feet. After acidizing the Simpson with 1,000 gallons the well pumped 245 bbls. oil in 24 hours. The well was good initially for 3,645 bbls. of oil from the Wapanucka during the early part of 1932.

Iglehart Petroleum Co. is building rig to deepen No. 1 Davis, NE SW NE section 30-7-8, which produced from the Wapanucka, 2,990-3,052 feet.

The Carter Oil Co. staked two new locations in the South Keokuk pool in Seminole County during the past week. They are No. 1 Fannie Black, C E half NW NW section 23-10-6, and No. 1 G. M. Mayhue, C W half SW NE section 23-10-6.

West of Seminole in Pottawatomie County, the Arrow Drilling Co. has cellar and pits dug for No. 2 Greenlee, SE cor. section 26-6-4. Phillaine Oil Co. is rigging up rotary tools for its No. 3 Garrett, NW SE NW section 28-7-4.

Out in the northeastern part of Pittsburg County, Mid-Western Oil & Gas Co. has staked a location for No. 4 Trekoll, NW SW NW section 14-7-18.

Southwestern Oklahoma

In Jackson County's Altus pool, C W Cole No. 1 Cole, SE SW SW section 34-2-20w, pumped 40 bbls. of oil initially from the Granite Wash encountered at 1,456 feet. The well was drilled to 1,467 feet and plugged back 6 feet. It was completed.

The Universal Co. is building rig for a wildcat in southeastern Jackson County. The test, known as No. 1 R. W. Briscoe, is located in the NW SW NE of section 36-1s-20w.

About 3 mile northeast of the new Jackson County wildcat, Charles Walker has staked location for No. 1 D. M. Gale, wildcat test located in the NE NE NW of section 16-1s-19w, Tillman County.

Another Deep Test

Southern Oklahoma is to receive another important deep wildcat test,

Left to right: E. E. Finefrock, sales manager, Murray Tool & Supply Co.; Kenneth Landers, production department, Skelly Oil Co.; V. C. Richards, Murray Tool & Supply Co.; O. D. (Kid) Williams, tool pusher, Helmerich & Payne; L. V. Evans, Midco Tool & Supply Co.; Andy Mahlandt, distributor for Maloney Tank Co.

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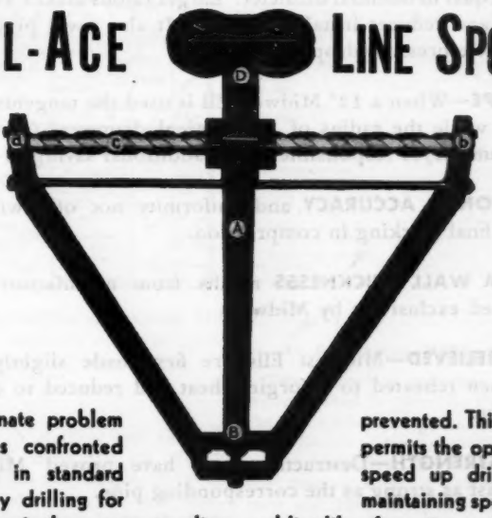
SHULL-ACE LINE SPOOLER



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4 DIMENSIONAL ACCURACY and uniformity not otherwise possible result from final working in compression.

5 UNIFORM WALL THICKNESSS results from manufacturing process which is used exclusively by Midwest.

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but this time in Jefferson County about 10 miles northwest of the Oscar Pool. Sinclair Prairie Oil Co. will drill its No. 1 M. H. Barrett, NW cor. section 31-5s-6w, on a 3,500-acre block.

In Stephens County, four wells were completed, three of which were abandoned. The Shasta Oil Co. No. 1 Fuqua, NE NW NW of section 13-1s-7w, was abandoned at total depth of 3,522 feet in dry sandy shale. This was a wildcat test 3 miles southeast of the town of Duncan. The other three wells, in the Velma pool, are as follows: Skelly Oil Co. No. 11 G. D. Harmon, approximately SE SE SE NE section 27-1s-5w, pumped 18 bbls. oil from sand encountered at 921-46 feet, total depth; Reese and others No. 1-A Jones, NW SW SE section 23-1s-4w, abandoned at 887 feet encountering an estimated 4 bbls. oil from a sand at 650-58 feet; and J. Carter & Ring No. 1-A S. S. Arn, approximately SW NW NE of section 26-1s-5w, missed the pay sand and was abandoned at 1,100 feet, in dry sandy shale.

Three new operations were started in the Wildcat Jim Pool, Carter County, as follows: Coline Oil Co. No. 12 Higgins, NE NE SW section 6-2s-2w, location; Sademan Oil Co. No. 2 J. J. Eaves, NW SW NE section 6-2s-2w, building rig; and the Carter Oil Co. No. 3 Humble-Hefner, approximately SW NW SE section 9-2s-2w, rigging up.

In Carter County, Skelly Oil Co. abandoned its No. 1 Baker, NW NE NE section 20-2s-2w, at a total depth at 2,625 feet in dry shale.

In the old Fox Pool in Carter County, the Gypsy Oil Co. has cellar and pits dug for a 4,500-foot test located in the SE NW SE of section 28-2s-3w. This well will be known as the No. 3 D. C. Fitzgerald.

Grady County

In southwestern Grady County the Gas Producers Co. deepened its No. 1 Dryden, SE SW SE section 35-5-8w, from 1,474 feet to sand at 1,710-1,757 feet, where the well was completed for 350,000 feet gas, rock pressure 500 pounds.

A little farther south in Grady County, Alma Oil Co. is drilling at 2,500 feet in its No. 1-A Benton, SE SW SW section 12-4-8w, which is being deepened from old total depth of 2,250 feet.

Completions and Operations in New York-Pennsylvania Gas Field

By R. C. CONINE

COUDERSPORT, Pa., Dec. 23.—The New York section of the Pennsylvania-New York Oriskany gas sand area marked up the only completions for the field in the week ending December 20. Coy Kendall completed a test on the S. Murphy farm, Rome Township, Oneida County, for a production of 500,000 feet a day. Pay was at 440 feet and total depth of the hole, 748 feet. Initial rock pressure was 340 pounds. Wittmer Oil & Gas Co. found its test on the Byron Shultz farm, Avoca Township, Steuben County, dry and abandoned at 3,140 feet.

New York Drilling

Belmont Quadrangle Development Co. was tubing at 4,487 feet after getting the top of the Oriskany at 4,506 feet on the C. B. Regan farm, Alma Township, Allegany County. Same company was rigging up on the Thomas Burns farm, same township and county. Bayless and others were shut down at 2,230 feet on the H. Behrens farm, Allen Township, same county. Schrack and others were drilling at 3,410 feet on the Lewis & Knox property, Alma Township, same county. Becker and others were drilling at 220 feet on the No. 2 Burns, same township and county. Godfrey L. Cabot was drilling at 950 feet on the Gillette farm, Amity Township, same county. Wyoga Oil & Gas Co. was drilling at 1,290 feet on the Henry Knox farm, Willing Township, same county. Wittmer Oil & Gas Co. was drilling at 1,750 feet on the Snyder farm, Angelica Township, same county.

In Greenwood Township, Steuben County, Wittmer Oil & Gas Co. was drilling at 4,220 feet after finding the Tully marker at 3,764-3,822 feet. Utica Natural Gas Co. was drilling at 875 feet on the William Grimm farm, Western Township, Oneida County. Property Shares was drilling at 900 feet on the R. Skinner farm, Westmoreland farm, same county. Wyoga Oil & Gas Co. was bailing water at 3,750 feet on the Estee farm, Charlotte Township, Chautauqua County. Belmont Quadrangle Development Co. was drilling at 1,650 feet on the Percy Curtis farm, Leon Township, Cattaraugus County.

Pennsylvania Drilling

After cementing the hole at a depth of 350 feet, P. P. & L. Co. moved the rig 30 feet north for their test on the Joe Trimmer farm, Clymer Township, Tioga County. Godfrey L. Cabot was drilling at 5,760 feet on the A. G. Lyman farm, Ulysses Township, Potter County. Same party was drilling at 3,050 feet on the Duke estate property, Genesee Township, same county. Miller, Ake and others were drilling at 1,700 feet on the Walter Burrell farm, Genesee Township, same County. Penn-York was idle at its location on the Theodore Cobb farm, same township and county. Hanley & Bird were drilling at 4,465 feet on No. 2 Burd, Allegany Township, same county. Potter Development Co. and others were drilling at 1,765 feet on the Walter Burrell farm, Genesee Township, same county. Godfrey L. Cabot was moving in on the H. Decker farm, Westfield Township, Tioga County.

North Louisiana, Arkansas

STANDARD PIPE LINE LIMITS RUNS IN BIG RODESSA FIELD

By
J. R. CRUMPTON

SHREVEPORT, La., Dec. 23.—A movement which will materially control future daily production in the new Rodessa field in Caddo Parish was made by the Standard Pipe Line Co. of Louisiana effective on December 21. This company, which has been taking all of the production to date, set 15,000 bbls. daily as the maximum amount to be run from all wells in the field. It is not a proration movement on the part of the buyer, but merely a question of total maximum that can be handled at this time considering capacity of lines, present contracts, etc. The Standard Pipe Line Co., gathering unit for Standard Oil Co. of Louisiana, is running production from Rodessa into its main Oklahoma-Baton Rouge line, which is about 8 miles from the field.

The minerals division of the State Conservation Department, which has control of allowable production in the state in cooperation with the interior department at Washington, has been prorating the Rodessa field on a per well basis each month since its discovery. The allowable during the month of December was 500 bbls. per well; and, with 30 wells now completed in the area, this allowable will take up the present pipe line take.

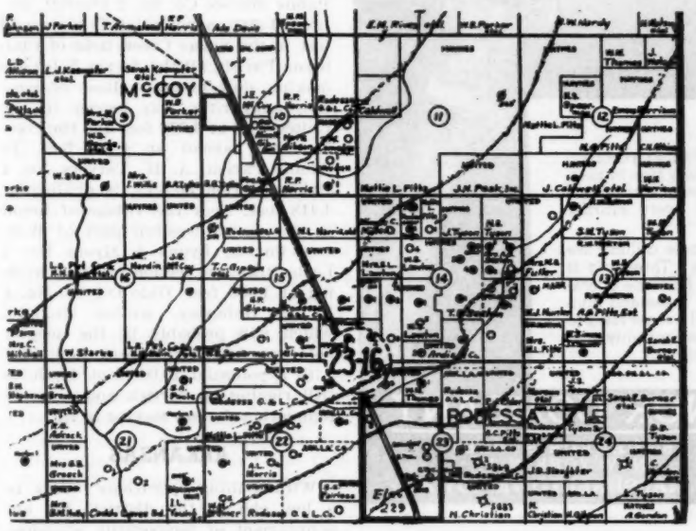
Dr. Shaw's Statement

A statement from Dr. J. A. Shaw of the minerals division contemplates no change in the present policy of reducing the per well allowable from month to month as new ones are brought in. He says it is a problem of the operators of the field to work out a per well allowable, based on the present take of the Standard Pipe Line Co. The operators, however, are making arrangements for erection of loading racks, and it is reported other companies will come into the field with lines.

The United Gas Public Service Co., a major operator in this area, has no system of oil pipe lines or refineries in this district, having confined its activities in the past to the production and distribution of natural gas. Louisiana-Arkansas Gas Co., a subsidiary of Cities Service, has a network of pipe lines in North Louisiana and much steel storage and a refinery at Bossier City of 20,000 bbls. daily capacity. The 30 wells in Rodessa have a potential combined open flow of 1,000,000 bbls. daily, and the stripper fields in this district produce around 25,000 bbls. daily. It is the concensus of opinion among operators in this area that the North Louisiana district, a separate unit from the coastal area, should have an ultimate allowable of 200,000 bbls. daily, based on a comparison of other districts in the Mid-Continent divisions.

Two New Completions

The Rodessa field reported two completions of large potential flow, one partially completed well and another which seems destined to be the first failure since oil was discovered last July. The latter, however, is an outpost well on the northern flank on the downdip from the fault line, and the results have been anticipated for several weeks. Haynes Production Co. No. 4 Sexton, 337 feet north and 230 feet west of SE cor. SW NE section 14-23-16, topped saturated lime at 5,990 feet, and from a total depth of 6,030 feet flowed 174 bbls. per hour through 1¼-inch choke on tubing. United Gas Public Service Co. No. 1 Ardis & Co., 660 feet north and 1,980 feet west of SE cor. section 14-23-16, flowed 68 bbls. per hour through one-half inch choke on tubing from total depth of 6,010 feet. Top of saturation was contacted at 5,967 feet. The well is also making about 20,000,000 feet of gas. The same company's No. 1 Poole, 660 feet south and west of NE cor. section 21-23-16, is assured of being an oil well, but is a disappointment in its initial flow and also because of a salt water show. The well is located one-half mile north of the discovery No. 1 Young on the southwest trend. Top of saturation was logged at 5,964 feet and when washed in from a total depth of 5,997 feet it made 160 bbls. the first 14 hours and went dead. It was washed in again and made 186 bbls. in 24 hours. The well showed some salt water, a puzzle to operators as it logs subsea depth of 5,765 feet or 22 feet above the established water level of 5,787 feet. It is the farthest north test on the southwest flank and may indicate the width of the producing area in this direction.



United Gas Public Service Co. No. 1 Ardis, NE quarter of section 21-23-16, Rodessa pool, indicates the nearness of western edge of pool

(Texarkana Map & Blue Print Co., Texarkana)

Big Gasser in Sligo

Arkansas-Louisiana Gas Co. No. 1-B Werner, section 7-17-11, in the Sligo field of Bossier Parish, was completed as a good gasser from Oolitic lime of the Glen Rose series from a total depth of 4,246 feet. The well gauged 40,180,000 feet of saturated gas with 1,835 pounds rock pressure. Two small gassers were reported from the Ouachita Parish area of the Monroe field and two oil pumpers from the Mooringsport-Oil City district of Caddo field. A shallow test in Red River Parish, India Oil Co. No. 1 Louisiana Pecan Co., section 27-13-11, was abandoned as dry at 1,005 feet. Another shallow test, John D. Blalock No. 2-A Seybert, section 17-20-15, Caddo Parish, was dry and abandoned at 1,500 feet.

May Be Abandoned

George Manahan No. 1 T. M. Comegys, a northern flank well in section 10-23-16, and one-quarter mile north of the smallest producer completed, will probably be abandoned as dry after testing at various depths. The original total depth was 6,026 feet, subsea depth 5,821.6 feet, and was finally plugged back to 5,905 feet and casing shot from 5,700-10 feet and again from 5,740-50 feet and 5,870-80 feet. Attempts were made to get production from the three upper sands which produce gas on the updip, same logged in the test as follows: Top of Hill sand 5,748 feet, Gloyd sand at 5,855 feet and Deas sand at 5,983 feet. Oolitic lime was cored at 6,020 feet, which was 28.6 feet below the water level. This test seems to definitely define the northern boundary on the downdip and tends to prove the original contention that the field will be long and narrow, at least the latter, following the fault line northeast and southwest. A northeast test is being closely watched for an extension in that direction. M. H. Marr and others No. 1 W. J. Hunter, section 13-23-16, topped saturation at 6,010 feet and is arranging to set casing and test from a total depth of 6,040 feet.

Estimated Production

Estimated daily gross production all companies week ending December 20, 1935:

NORTH LOUISIANA

Bellevue	480
Caddo light	4,235
Caddo heavy	2,375
Converse	1,320
Cotton Valley	835
De Soto and Red River	1,350
Elm Grove	390
Haynesville	3,400
Holly	165
Homer	2,590
Pleasant Hill	165
Rodessa	17,635
Sarepta-Carterville	520
Urania	2,670
Zwolle	1,350
Total	39,170

SOUTH ARKANSAS

Champagnolle	1,680
El Dorado	2,200
Lisbon	290
Miller County	1,355
Nevada	865
Smackover light	2,210
Smackover heavy	17,915
Stephens	630
Urbana	2,150
Total	29,495

Important Wildcats

Two important wildcats were reported staked in Bienville Parish near the Grambling structure, on which a good Oolitic lime gas well was recently completed, the latter being on the western edge of Lincoln Parish near the Bienville Parish line. Lide & Greer No. 1 Davis Brothers Lumber Co., section 12-16-5w, is rigging up on a 6,000-acre block which was assembled before completion of the discovery gasser in that area. These operators were also interested in the drilling of the Lincoln well. Texas Seaboard Oil Co. has derrick up on No. 1 F. E. McGee in section 3-16-6w, and has a large block of acreage surrounding the test, which is located on what is known locally as the Bear Creek structure, about 12 miles southwest of the new gas well. Leasing continues at a brisk rate over the entire northwest Louisiana district.

Standard's Big Block

In the southern part of Webster Parish, in the vicinity of Dubberly High and the Lake Bisteneau gas area, Standard Oil Co. of Louisiana

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has recently completed a block of approximately 10,000 acres centering around section 2-17-9. The acreage was assembled after a preliminary geophysical survey and the leases were taken on a straight commercial basis with no drilling clause. J. P. Evans, independent operator of Shreveport, and Arkansas-Louisiana Gas Co. also have two blocks in this vicinity, one of which had three shallow wells drilled on it about two years ago. It is reported that the latter operators will drill a 6,000-foot test, but the leases have no drilling clause. Acreage, both leases and mineral rights, in this area between the towns of Sibley, Heflin and Dubberly has had a good play during the past two weeks since it became known that Standard Oil Co. had assembled its block on a supposed geophysical high. Union Parish, near Farmerville, in the Dubach area of Lincoln Parish north of Ruston, and Antitoch area northwest of Lisbon in Claiborne Parish, are other localities where blocks are being taken. Another block in Lincoln Parish has been assembled by Charles Baunoch and Leonard Hodge, centering around section 14-18-5, and calls for a 6,000-foot hole.

Claiborne Parish

With the exception of United Gas Public Service Co. No. 2 Durrett, section 31-20-5, a potential Trinity sand test in the Sugar Creek field of Claiborne Parish, all the deeper holes are making slow progress. Base of massive anhydrites was logged in the United well at 4,372 feet and the crew is coring ahead at 4,406 feet. In Sabine Parish, A. H. Tarvers No. 1 Baker, section 36-8-12, is drilling at 4,418 feet. Near the village of Leton in the central-western part of Webster Parish, Lyons & Myers No. 1 Leola Brantley, section 1-21-9, is drilling at 1,993 feet. Ohio Oil Co. No. 1 R. L. Holloway, section 23-21-10, which will probably be the deepest hole yet drilled in North Louisiana with a potential 10,000-foot depth, is still rigging up derrick and concrete foundations before moving in rig.

ARKANSAS

With drilling operations lulling to a low ebb in the district, the announcement of temporarily abandoning Benedum & Trees No. 1 H. Brighton, section 29-14-10, a deep test in Ouachita County, did not help the morale of operators. However, the actual operations in progress fail to reflect the activity in the southwestern part of the state in leasing and geophysical work. The above test is temporarily abandoned in hard granite at 5,197 feet. In the vicinity of Lewisville and Stamps in Lafayette County, in a strip about 10 miles long and 3 miles wide, and extending from section 22-16-23 to section 19-16-24, and south of the base line of these two towns, several major companies and independents have blocks or spreads of from 3,500 to 10,000 acres. The wildcatting in this area follows along the old Balcones Fault, known locally as the Humble fault because of numerous test holes drilled by the latter company several years ago in establishing the locality of the fault line in that vicinity. A large tract of some 200,000 acres is reported to have been taken on geophysical option in Calhoun and Ouachita Counties, with ultimate contract of one test to every 10,000 acres. The acreage is located in what is known as the Cooter Neck area and is being worked up by Joe B. Hurley of El Dorado. In Columbia County, near the town of Magnolia, leasing and seismographic surveys continue at a brisk rate.

Magale & Elam No. 1 L. Garrett, section 13-17-20, Columbia County, has set 10-inch surface casing at 200 feet and is drilling at 1,816 feet. Riggs Brothers No. 1 DuBose, section 35-15-24, Lafayette County, tested salt water and is shut down waiting orders at 2,830 feet. Transportation Petroleum Co. No. 1 Cockran, section 26-19-25, is coring at 3,412 feet after swabbing dry at 3,362 feet. North of Rodessa, Haynes Oil Corp. No. 1 Embree estate, section 9-20-28, Miller County, topped anhydrites at 5,230 feet and is drilling at 5,300 feet.

East Texas Border Counties

American Liberty Oil Co. No. 1 J. B. Rodgers, C. M. Robinson Survey, a few miles southwest of Rodessa, is coring at 5,980 feet. No information is obtainable on the contacts since topping anhydrites at 5,144 feet. Just inside the Cass County line, R. W. Norton No. 1 Haywood, Priscilla Evans Survey, logged base of massive anhydrites at 5,648 feet, topped Hill sand at 5,685 feet and is running Schlumberger test at 5,950 feet.

In Panola County, northeast of the town of Carthage, Whitehurst & Myers have spudded in on No. 1 Williamson and set 12½-inch surface casing at 200 feet. The test, scheduled to drill to Oolitic lime or deeper into the Trinity series, is located on a block of 10,000 acres assembled and mapped out by D. N. Jolley, independent geologist of Shreveport. East of the Shelbyville area of Shelby County, Tarvbud Oil Co. No. 1 Pickering Lumber Co., W. D. Woodfin Survey, is coring near the base of anhydrites at 4,683 feet. The well logged top of this formation at 4,323 feet with a surface elevation of 274 feet.

The Inventor's Congress

The oil man visiting the ninth International Petroleum Exposition in Tulsa next May 16 to 23 will not only see the latest improvements in equipment and methods but will have an opportunity to inspect new inventions not yet manufactured but which promise to be of value to the industry in future years, according to W. B. Way, general manager. Such a display is being arranged by the scientific and technical committee of the exposition. It will be known as an inventor's congress.

Free space is being granted for this exhibit and inventors and discoverers of new devices or products are requested to write the scientific committee of the exposition, if they wish to exhibit.

Patents or inventions must be limited to the oil industry and due to limited space the first requests received will be allotted space as long as it is available.

"It is possible that the oil man will find in this display some one or two devices which may revolutionize some division of the industry," said Way.

E. M. Cline, scout for the Shell Petroleum Corporation with headquarters at Hobbs, N. Mex., is spending his vacation in Oklahoma. W. B. Baker, Shell scout at Kilgore, is visiting in Dallas, Tex., and Dale Rowden, Shell scout at Shreveport, La., visited in Austin the past week.

California Field Report

KETTLEMAN HILLS PRODUCERS REDUCE THEIR CRUDE OUTPUT

By L. P. STOCKMAN

LOS ANGELES, Calif., Dec. 23.—A substantial reduction in crude oil production of the Kettleman North Dome field and approval of an agreement governing the production of natural gas in the Mountain View field were of outstanding importance in California during the past week. As a result of the constructive move undertaken at Kettleman Hills, the production of this field dropped below 100,000 bbls. per day for the first time since the early part of November and it appears probable that the production of Kettleman Hills will be reduced by cooperative action to approximately 85,000 bbls. per day before the close of the year. Superior Oil Co. started the ball rolling by reducing its production from 12,000 bbls. per day to 7,000 bbls. and Union Oil Co., holding the adjacent 160-acre Amerada-King lease, met the Superior's production barrel for barrel. The Superior subsequently reduced current daily production to 5,500 bbls. and Union Oil Co. simultaneously effected a corresponding reduction. Standard Oil Co. has pinched in approximately 5,000 bbls. per day on adjacent property and, while Kenda has not taken any definite action, the association will undoubtedly fall in line within a day or so.

Despite rumors to the contrary, the reduction in production of the Kettleman North Dome field is of an entirely voluntary nature, and is not the result of any gentlemen's agreement to restrict future production. It has been known for several weeks that Superior Oil Co. held the key to future production of the Kettleman North Dome field and that its action would be the determining factor from a production standpoint. Union Oil Co. has been meeting Superior Oil Co.'s daily production barrel for barrel and consequently when the latter began reducing current production the former followed a similar procedure. The substantial reduction already effected and the additional restriction projected to be initiated in the immediate future will practically eliminate the waste of natural gas in the Kettleman North Dome field, and consequently the California Department of Natural Resources will hold its proposed injunction proceedings in abeyance.

Mountain View

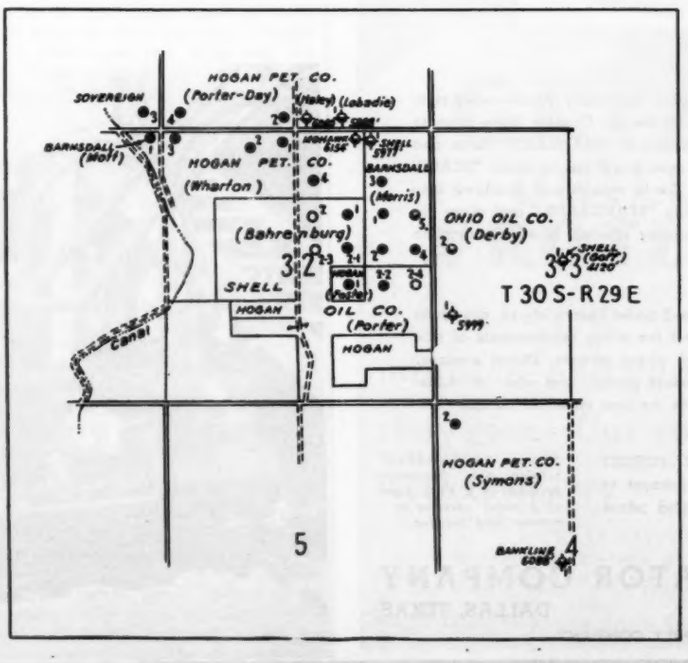
The action of Kettleman Hills operators in reducing crude oil production, which also resulted in a lower production of natural gas, greatly enhanced efforts to formulate an acceptable program involving natural gas production in the Mountain View field of Kern County. The reduction in crude oil production effected in the Kettleman North Dome field is expected to be reflected in refined oil prices in the near future because when Kettleman Hills production is brought down to the 85,000-bbl. level it will represent a reduction of approximately 30,000 bbls. per day in the production of the field. The agreement reached by operators in the Mountain View field and the California Department of Natural Resources contemplates a maximum production of 54,000,000 feet of gas per day. The northwest end of the Mountain View field has been allotted a maximum daily production of 16,000,000 feet, while the southeastern end of the field will be permitted to produce up to 38,000,000 feet per day.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic:						
Fuel oil	.....	.....	.....	.....	.....	11,805,267
Diesel and gas oil	76,659	10,951	.....	.....	716,046	1,507,410
Gasoline	.....	.....	151,794	21,685	6,940,060	7,758,320
Kerosene	.....	.....	.....	.....	830,445	1,175,639
Asphalt	.....	.....	.....	.....	.....	70,019
Other finished oil	.....	.....	.....	.....	.....	54,778
Foreign exports:						
Crude oil	146,831	20,976	285,522	40,789	12,112,348	7,848,924
Fuel oil	117,554	16,793	206,936	29,562	11,435,451	12,761,600
Diesel and gas oil	.....	.....	203,358	29,051	4,259,830	3,980,597
Gasoline	81,780	11,683	43,644	6,235	6,409,195	4,623,603
Kerosene	19,590	2,799	47,194	6,742	1,202,953	1,743,246
Other finished oil	.....	.....	.....	.....	.....	37,955
Other unfinished oil	.....	.....	.....	.....	120,024	230,745
Coastwise-domestic:						
Crude oil	93,608	13,373	134,003	19,143	6,558,692	7,503,477
Fuel oil	147,768	21,110	168,114	24,016	8,829,110	9,134,026
Diesel and gas oil	11,713	1,673	8,981	1,283	1,091,526	715,015
Gasoline	144,903	20,700	284,903	40,700	10,808,766	13,275,559
Kerosene	.....	.....	8,989	1,284	175,198	303,277

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Fuel oil	.....	.....	.....	.....	.....	110,650
Diesel and gas oil	.....	.....	.....	.....	158,152	675,775
Gasoline	.....	.....	.....	.....	.....	435,943
Kerosene	.....	.....	.....	.....	149,715	276,593
Asphalt	.....	.....	.....	.....	484,597	.....
Lubricants	.....	.....	.....	.....	60,320	52,112
Foreign exports:						
Crude oil	.....	.....	159,165	22,738	2,535,173	1,857,361
Fuel oil	.....	.....	16,214	2,316	2,112,349	2,124,592
Diesel and gas oil	.....	.....	.....	.....	915,307	1,174,982
Gasoline	.....	.....	204,903	29,272	2,768,092	2,732,842
Kerosene	.....	.....	3,143	449	638,344	1,044,769
Lubricants	.....	.....	9,983	1,426	183,490	170,760
Other finished oil	.....	.....	.....	.....	.....	2,760
Other unfinished oil	.....	.....	.....	.....	.....	5,750
Coastwise-domestic:						
Fuel oil	72,841	10,406	489,664	69,952	6,797,097	5,119,277
Diesel and gas oil	.....	.....	.....	.....	215,294	119,036
Gasoline	66,345	9,478	170,009	24,287	4,209,723	5,323,369
Kerosene	.....	.....	.....	.....	94,005	82,434



Southeastern end of Mountain View field

On the basis of the agreement reached at Mountain View and as a result of the cooperative reduction in production of the Kettleman North Dome field, the waste of gas during the winter months will be practically negligible. It appears probable also that if operators in the Mountain View field continue to produce approximately 50,000,000 feet of gas per day during the next three months, this field will probably not be a factor of consequence from a production standpoint by July 1, 1936. Recent completions in the Mountain View field have already begun to reflect tangible evidence of excessive depletion.

Future Production

The present status of the Mountain View field and decision of operators in the Kettleman North Dome field to restrict future production augurs well for conditions in 1936 because it appears probable that production and consumption will be closer to an equilibrium unless some new prolific shallow field is discovered in the meantime. Independent refiners in Los Angeles Basin will probably be faced with the necessity of paying a premium for crude oil next year if they desire to maintain their present operating status. A number of smaller refiners are at present paying a premium of 15 cents per barrel for light refining crude oil in Los Angeles Basin fields and there is still a considerable quantity of this crude which can be picked up in the spot market at this price. A large part of this available crude oil was produced during the recent period of low prices and stored in either lease tanks or in some of the larger tanks which were made available to producers on a rental basis. A number of operators in several fields cancelled sales contracts with refiners after crude oil prices were reduced on August 29, and as a result they are now in a position to negotiate new contracts with other refiners at the market price plus a small premium. Practically all of the major refiners in California are anxious to make contracts for the purchase of crude for a period of from three to five years' duration, on the assumption that crude oil production during the next few years will be less plentiful than it is at present. There is a tendency to disregard small production and concentrate on purchases of oil of large producers. This eliminates much of the usual long and short gauging of numerous small tanks. In other words, it involves less work to gauge and take delivery of crude oil from one large tank than from 10 smaller tanks containing the same quantity of oil. A considerable portion of the crude oil produced and stored by operators during the recent period of

low prices is being delivered to buyers and a substantial part of the remainder will be run within 30 days. Increased deliveries of crude oil to buyers was especially pronounced upon the partial restoration of crude oil prices but several hundred thousand barrels are still being retained by operators for higher prices because it is thought the Federal Trade Commission will approve the proposed California marketing code early in 1936 and that both crude and refined oil prices will be slightly increased and stabilized.

Deep Test

Wilshire Oil Co. drilled out the cement in No. 4-A Baker in the Santa Fe Springs field of Los Angeles Basin, and after cleaning out 5 feet below the shoe of the 4¾-inch water string landed at 8,479 feet, began running in a 3-inch liner. A formation test showed 10 stands of gas-cut mud recovered from the 5 feet of hole below the shoe of the 4¾-inch. This well, bottomed at 8,803 feet, has been standing with a cement plug in bottom for approximately two years. The outcome of the production test will exert a pronounced effect on future deep drilling and production activities in the Santa Fe Springs field because if the company succeeds in developing commercial production it will lead to another town-lot program. Pedro Petroleum Corp. completed a new well in the Santa Fe Springs field this week when No. 5 Fulton was brought in pumping 305 bbls. of clean 35.1 gravity oil per day from 4,510 feet after the hole had been finished with a 5-inch liner carrying 217 feet of perforated.

Republic Petroleum Co. is expected to start another well in the El Segundo district of Los Angeles Basin in the near future. The relatively small production developed by the Republic Petroleum in its discovery well in the El Segundo area did not justify additional exploration. Other operators interested in the area and holding acreage adjacent to Republic's lease are anxious to determine the value of their holdings and plans have just about been completed for the drilling of a joint test. The Republic Petroleum Co. will do the actual drilling and operators holding adjacent acreage will contribute dry-hole money. The exact location of the test may be made known early in January. Completion of Republic Petroleum Co.'s discovery well last August has greatly stimulated interest in the coastal area of Los Angeles Basin, and as a result several tests have been started and extensive leasing completed.

Production Test

Union Oil Co. drilled out cement in No. 1 Lillis-Welsh, a deep test in the extreme western end of the Kettleman North Dome field, and if a satisfactory water shutoff has been effected the company will resume drilling. The Union recently landed 10,813 feet of 6⅝-inch casing in this well and upon drilling out the cement drilled down to 10,828 feet. No. 1 Lillis-Welsh, provided an effective water shutoff is secured, should be ready for a production test later this month or early in January. Kenda and Standard Oil Co. have a number of potential producers nearing completion in the Kettleman North Dome field and several of them should be tanking oil within a few weeks. The Milham Exploration Co., developing a block of approximately 20,000 acres held jointly by the General Petroleum, Associated and Milham companies in the Tulare Lake area, has abandoned its initial test in section 5-22-19 as dry at 5,423 feet. Location has been selected for the second test in this area and material should be on ground for this well, on the Boston Land Co. property in section 14-20-18, within the next few days. In San Joaquin County Amerada Petroleum Corp. has abandoned No. 11-23 Tracy as dry at 5,107 feet and rotary drilling equipment from this well has been moved over to No. 3 F.D.L. in section 15-2-5.

Universal Consolidated Oil Co. has plugged back No. 1 Estrada in the eastern extension of the Montebello field from 5,608 feet to 5,595 feet as water was located between 5,598 and 5,608 feet. The 9-inch water string was cemented in this well some time ago at 5,548 feet. If clean production is not developed above the cement plug the company will deepen to the Cruz zone. The failure of several wells in this general area to develop commercial production has taken the edge off interest in the field. The Playa Del Rey field of Los Angeles Basin is fast returning to the dormant position it occupied previous to completion of Charles W. Fourl's extension well in the Palisades section of the field. Union Oil Co. is making preparations to complete No. 14 Vidor in this field and is building rigs for two additional wells which should begin making hole in the immediate future. With the exception of this work, however, there is very little activity in the field.

Mountain View

The small initial daily production shown by Standard Oil Co. No. 2 Abadie in the Mountain View field of Kern County clearly indicates the unfavorable effect of gas waste in this field, as it was good for only 430 bbls. of clean 27.4 gravity oil and 160,000 feet of gas per day from 5,290 feet after the hole had been finished with a 6⅝-inch liner including 240 feet of perforated. The two previous completions of the Standard in this field also registered small production. These small wells are representative of a certain section of the Mountain View field and should not be considered as being typical examples for the field as a whole. The southeastern end of the Mountain View field appears to offer the best opportunity for the completion of relatively large flowing wells, and development work in this area will be watched with special interest. Hogan Petroleum Co. No. 2 Symons, a recent completion, extended the eastern limits of production and indicated the presence of a substantial gas cap as it was brought in flowing 25,000,000 feet of gas and 350 bbls. of crude oil. The extremely high gas-oil ratio tends to indicate the existence of a new productive section of the Mountain View field which may prevent field production from declining as fast as anticipated. The extent and productivity of the new productive area opened up in the eastern end of the Mountain View structure will probably not be definitely determined for 60 days. Standard Oil Co. is pursuing a rather

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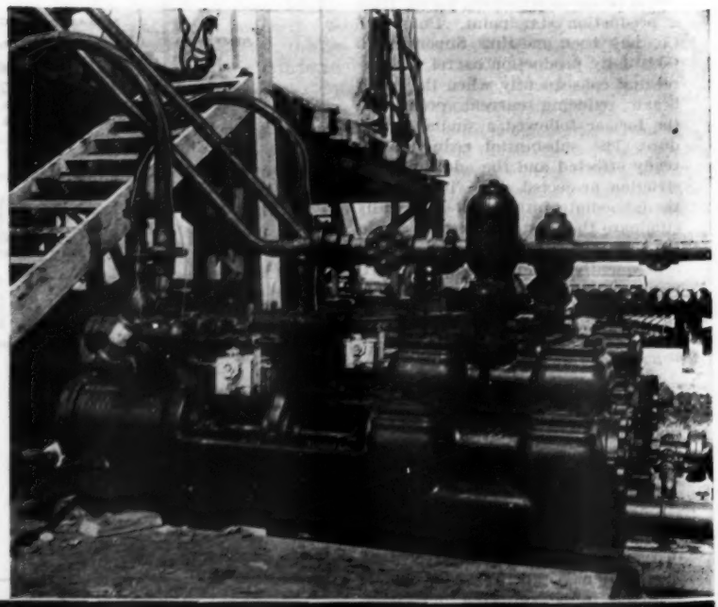

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aggressive development program in the Mountain View field and apparently contemplates a continuance, as several new rigs are in course of construction.

General Petroleum added a new well to its producers in the Edison field of Kern County during the week by completing No. 5 Knapp, pumping 461 bbls. of 19.6 gravity oil per day from 1,428 feet. The crew from this well was transferred to No. 6 Knapp, which had been rigged previously, and drilling operations undertaken immediately. Union Oil Co. has material on ground for No. 3 Daugherty, 990 feet north and 996 feet west of east quarter cor. section 14-30-29, and spud is expected to be made within the next fortnight. The Shell No. 4 Duff in the Edison field failed to come up to expectations upon completion at 3,021 feet after the hole had been plugged back from 3,232 feet as it was good for only 30 bbls. of 20.8 gravity oil per day on the beam. North American Oil Corp. has picked up the pay in No. 3 Brown in section 14-30-29 and the bit is at the present time rotating in oil sand at 1,446 feet.

Belridge

Two new wells are expected to be completed in the North Belridge field of Kern County within the next 15 days and another, Standard Oil Co. No. 3 McPhail, in section 36-27-20, should follow them into production within a short time. Union Oil Co., which is preparing to spud in No. 29 Belridge, recently landed and cemented 8,565 feet of 7-inch casing after bottoming the hole at 8,606 feet. The cement will be drilled out within the next few days and if an effective water shutoff has been secured, the well will be drilled into the pay and completed in the immediate future. Continental Oil Co. landed a 5-inch combination string in No. 6 Result in the North Belridge field and cemented through perforations at 7,896 feet. This string froze at 8,062 feet and consequently the lower 173 feet of hole is open. The formation in this field is rather hard, however, and this small mishap may not have any effect on future production. Standard Oil Co. has cemented No. 1 United in the Los Hills field of Kern County for the ninth time and a test will be made within the next week or so to determine the effectiveness of the latest job. Over 9,000 sacks of cement have already been put away in this well in a determined effort to shut off a high headwater zone that up to the present has defied all attempts. The 9⅝-inch water string which the company has been attempting to cement has been landed at 5,766 feet. The bottom of the hole is at 5,824 feet, where some showings of possible importance have been cored.

In the Fruitvale field Western Gulf Oil Co. has completed No. 1 Burlock pumping 102 bbls. of 19.3 gravity oil per day from 3,970 feet after the hole had been plugged back from 4,111 feet, but the output was still cutting 16 per cent at last reports. Standard Oil Co. No. 62 M. J. M. & M., in the Midway-Sunset field, proved good for only 30 bbls. per day on the beam following completion at 2,373 feet after the hole had been plugged back from 2,399 feet. The oil tests 23.1 degrees and is relatively clean. Chanslor-Canfield Midway Oil Co. No. 2 W. P. in section 27-32-23 was completed early this week pumping 77 bbls. of 15.3 gravity oil per day following completion at 1,571 feet but the output showed a cut of 43 per cent and may therefore necessitate some remedial work. In the Piru field of Ventura County Bolsa Chica Oil Co. completed No. 1-A Snow after redrilling and deepening to 3,035 feet and returned it to production pumping 255 bbls. per day.

Long Beach Field

Six wells were put on production in the Long Beach field of Los Angeles Basin during the week, although only one of this group was a new completion. This was Hill Petroleum Corp. No. 1 Signal at Nineteenth and Obispo Streets, which was brought in pumping 121 bbls. of 25.1 gravity oil per day from 4,569 feet after the hole had been finished with a 6⅝-inch liner carrying 502 feet of perforated. Sunshine Oil Co. No. 6 Rawco, at Junipero and Twenty-first Streets, failed to result in a natural flow upon being recompleted and was put on a compressor. This well was returned to production doing 233 bbls. of relatively clean 26.5 gravity oil per day from 4,150 feet after the hole had been finished with a 5-inch liner including 85 feet of perforated. A. N. Macrate No. 2 MacKay, Atlanta and Anderson Streets, was returned to production pumping 103 bbls. of 28.1 gravity oil per day after it had been plugged back from 7,000 feet to 6,435 feet, but the output was still showing a rather high water cut. Dabney Oil Corp. No. 91 Signal was another well in this field that registered an excessively high cut when put on a production test. No. 91 Long Beach was returned to production pumping 138 bbls. of 22.6 gravity oil per day after the hole had been plugged back from 4,409 feet to 3,809 feet. M. & O. Oil Co. No. 11 Signal, at California and Brandon Streets, was returned to production after the hole had been cleaned out to bottom, 4,585 feet, and it proved good for 142 bbls. of 25.1 gravity oil per day. Union Oil Co. No. 41 Hellman, in the Dominguez field of Los Angeles Basin, was completed early this week doing 298 bbls. of relatively clean 30.4 gravity oil per day upon completion in the upper zone at 4,691 feet after the hole had been plugged back from 4,943 feet. This well did not result in a natural flow and was brought in on a compressor.

Greta Producers Satisfied

At a hearing held in the Texas Railroad Commission offices at Austin last week, operators and landowners of the Greta field in Refugio County, showed unanimous approval of the present status of production in that field. Owners of the Missouri Pacific right of way in the field attacked the methods of proration and spacing rules, and the meeting resulted. The allowable in Greta is based entirely on acreage, no other factor being considered. All operators and a majority of the landowners were represented at the hearing; the former by attorneys and engineers and the latter by Gordon Griffin. All present signified satisfaction with the commission's present control methods in the field, opposing any changes. The right of way of the Missouri Pacific Railroad where the line passes through the field has not been developed.

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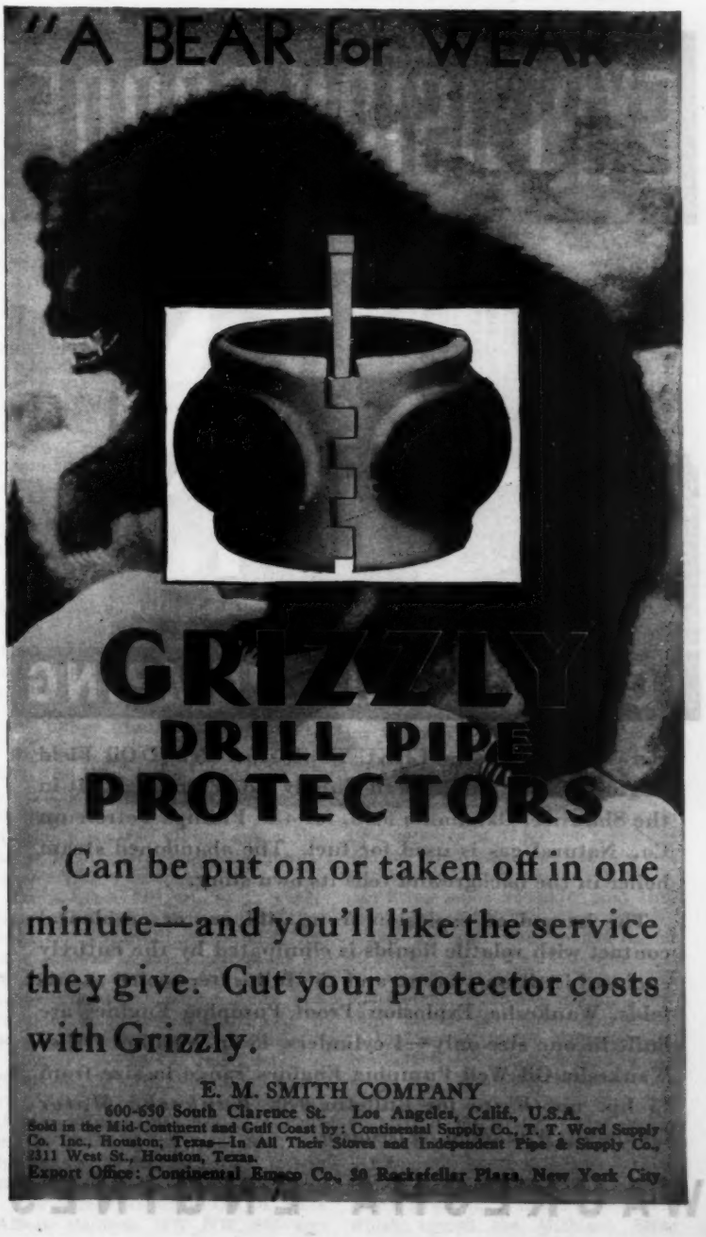

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WAUKESHA ENGINES

Central West

Operations in Central Ohio, Kentucky, Illinois, Indiana

By GEORGE A. WHITNEY

FINDLAY, Ohio, Dec. 23.—Few completions were reported from the Central West fields, the greater number being in the Indiana and Central Ohio fields, but none of them large producers of either oil or gas. In Putnam County, Ohio, the Ellenboro Oil & Gas Co. No. 1 Robert Baker may develop new work in section 22, Blanchard Township. It produced an initial of 10 bbls. at a total depth of 1,356 feet.

In Hancock County, the Wonder Oil Co. is reported at a depth of 1,540 feet in a test on the Holland & Harold Wonder farm, section 27, Big Lick Township.

In the Lima field, C. A. and F. J. Peavey are drilling No. 4 Mary E. Stelle, section 24, Bath Township, Allen County, and Pease & Pease, trustees are drilling No. 7 on the Nancy E. Leedy farm, section 14, same township and county.

In Auglaize County, N. E. Master is drilling a test on the J. W. Wisner farm, section 35, Hoagland Township.

Mercer County, A. A. Lauber is drilling No. 1 C. Gray, section 16, Butler Township. In Hardin County, McCaubray is drilling on the John B. Shedley farm, section 11, Marion Township. Robert Kirk & Co. No. 1 Leroy Wonder, section 27, Big Lick Township, produced 5 bbls. initially at 1,302 feet. In Goshen Township, same county, T. E. George & Co., drilling No. 1 on the B. L. Thompson farm, section 15.

In Ashland County, Ohio Fuel Gas Co. was drilling No. 1 Sigrist, section 6, Jackson Township, and drilling No. 1 Hammett, section 16, Vermillion Township, same county. Same company has a rig up for No. 2 J. E. Shopbell, section 20, Orange Township.

In Lorain County, William Dempsey No. 1 on the George Fisher farm, section 10, Avon Township, is a gas well completed at a depth of 2,309 feet.

In Holmes County, Bell Brothers No. 1 on the G. and M. Findley farm, section 18, Mechanice Township, is a gas well at a depth of 776 feet.

In Portage County, the Pawnee Corp. No. 1 on the Martha Rees farm, section 16, Paris Township, is drilling.

In Summitt County, East Ohio Gas Co. No. 1 on the Rose Lamb farm, section 17, Greene Township, is a 1-bbl. completion.

In Stark County, White & Lyons No. 1 George Daniels, section 12, Perry Township, is a gas well at a depth of 4,490 feet. Brendel Producing Co., drilling No. 1 on the Danemiller Land Co.'s property, section 13, Perry Township, same county. East Ohio Gas Co. is drilling No. 1 on the John B. Smith farm, section 1, Lawrence Township, same county.

In Perry County, the Ohio Fuel Gas Co. No. 1 on the F. L. Winegardner farm, section 7, Reading Township, is a gas well completed at 927 feet.

KENTUCKY

In McLean County, Kentucky, Sunflower Oil Co. No. 3 H. Howard, in the Livermore area, produced an initial of 40 bbls. Kentucky Natural Gas Co. and Hupp No. 1 Walter Athen, in the Livermore area, produced 20 bbls. initially and Walter Sargent No. 1 W. L. Taylor, produced 12 bbls. the first 24 hours.

In Henderson County, Chatham Oil Co. No. 1 J. T. Walker, in the Niagara area, produced 10 bbls. initially.

In Hancock County, Bollinger & Co. No. 1 Paul Bailey, was a dry hole.

INDIANA

In Vanderburg County, Indiana, Southern Indiana Gas & Electric No. 1 John R. Knapp, section 33, Center Township, produced an initial of 10 bbls. at a total depth of 909 feet. Indiana Southwestern Gas Corp. No. 1 George A. Hunter, SW SW section 20, Harrison Township, was dry at a depth of 863 feet. The Manager's Discount Corp. is drilling on the Oral Frye farm, NW NW section 17, Reeves Township. Geiger Oil Co. was drilling on the J. N. Peek farm, NW NW section 17, Veale Township.

In Decatur County, the Hoosier Public Service Co. No. 1 Jacob F. Ernst, NW NW section 29, Marion Township, is a gas well. In Delaware County, Fred M. Crapo No. 1 on the Crapo farm, in the NW NW section 7, Center Township, is a gas well.

In Hancock County, J. Harve Snider No. 1 on the William R. Low farm, in the SW SW section 20, Brandywine Township, is a dry hole at 994 feet, and the same operator is drilling No. 1 on the Welbert Messena farm, SW SW section 28, same township.

In Sullivan County, Nelson Brothers are drilling No. 1 David Holden, SE NW section 29, Haddon Township.

In Harrison County, Humes & Lexie Steel abandoned a dry hole in No. 1 on the C. W. Mauck farm, NW NE section 7, Washington Township, at a total depth of 1,074 feet.

In Huntington County, E. Lantz drilled a dry hole in No. 3 on the Charles Wiley farm, SE SE section 13, Jefferson Township, and abandoned it at 982 feet.

In Lawrence County, J. T. Imlers No. 1 on the Rosa Weybright farm, NE quarter section 4, Pleasants Township, is a gas well at 643 feet.

In Marion County, Bert Kinnaman No. 1 L. A. Pickle, NE quarter section 27, Lawrence Township, is a dry hole.

In Madison County, Laws & Co. No. 1 A. Laws, NW NW section 1, Green Township, is a gas well.

Michigan Field Report

By
PAUL A. ELLIOTT

VICKERYVILLE DISCOVERY IS PUZZLE TO MICHIGAN OIL MEN

MUSKEGON, Mich., Dec. 23.—Although many wildcats in Michigan and some tests in proven fields were shut down over the past week-end, either due to wintry weather or the approaching Christmas holiday, chief interest still centered in the disputed prospects of a new central Michigan field near Vickeryville, about 8 miles southwest of the Crystal pool.

Conflicting and rather meager reports were available from the No. 1 C. N. Long well which struck the Dundee pay two weeks ago and last week was reported to have made between 80 and 100 bbls. with several flows after swabbing.

Operators of the well, the Jetter Oil Co. and the Lima Oil Corp., declared the test, SW NW SE section 1-9n-6w, Bushnell Township, Montcalm County, had made a small flow whenever agitated with the swab. It was tubing to be placed on the pump for a more thorough test and several offset tests are being planned. It also was to be treated with acid before completion at 3,110 feet, about 12 feet in the Dundee.

Pure Transportation Co. last week completed a short 4-inch line to the nearest railroad at Vickeryville to handle the output of the new discovery well and others that may be successful in the possible new field.

In several tests the well was reported gauged for 15 minutes at the rate of 75 bbls. an hour, for 41 bbls. in the initial 15 minutes and at the rate of 90 bbls. an hour in another first day test.

Bay County

Operators were still hopeful of developing commercial production in the No. 1 Mike Suszko, SE SE NE section 11-18n-3e, Gibson Township, Bay County, drilled by M. C. Fordyce. It was plugged back from failure in the Dundee to test a show in the Traverse at 2,040 feet which indicated about 10 bbls. a day, natural. Although acid treatment for a short time increased the output, the tight limestone formation resulted in a quick decline. Treatment and testing was being continued.

Wildcat Gasser

Edward Stewart saved his No. 1 S. C. Haines, C NE SE section 17-12n-9w, Winfield Township, for the discovery well of a new central Michigan gas field in the northwest corner of Montcalm County, near Howard City and the village of Amble, shutting off encroaching water in the Michigan Stray or Marshall sands.

The well had an open flow capacity gauged at 1,430,000 feet a day at a total depth of 1,155 feet after the water shutoff. When first drilled into the shallow gas sand it had an initial gauge of about 2,000,000 feet a day. The Stray was topped at 1,102 feet and the Marshall at 1,143 feet with gas encountered from 1,149 to 1,155 feet before the drill struck water.

The Haines test is a southwest offset to L. G. Thompson No. 1 J. K. Knapp test in the same section, which struck an estimated flow of 6,000,000 feet of shallow gas before it was drilled on to the Dundee, failing to strike oil. An unsuccessful attempt was made to plug back to the gas.

Beaverton Field

One of the more interesting discoveries in proved fields added a fourth producer to the Beaverton Township, Gladwin County, field about 25 miles north of the Porter pool when the Smith Petroleum Co. No. 1 Mae E. Fruchey, SW SE SW section 2-17n-2w, made 150 bbls. daily in the Dundee.

Limestone was topped at 3,825 feet and drilling completed at 3,884 feet after passing through about 16 feet of pay sand. Two other tests in the field were nearing completion. M. F. Whitehill, who opened the pool last year, was drilling into the Dundee in his No. 1 William Bell, NW NE NW section 11, Beaverton Township, one location south of the Fruchey well. Dundee was first encountered at 3,818 feet and the drill had reached a depth of 3,848 feet. M. F. Whitehill No. 1 Chris Welcher, SW NE SW section 2, Beaverton Township, was nearing the Traverse, drilling at 2,715 feet.

One wildcat also was resuming operations at 3,428 feet in the Bentley Township, Gladwin County, namely the United Producers Oil & Royalty Co. No. 1 E. E. Nettleton, NW SW NE section 24-17n-2e.

Montcalm County

The two largest new oil wells last week each struck an initial flow of about 100 bbls. daily in the Dundee in the Crystal Township, Montcalm County field.

Daily Crude Oil Co. No. 4 W. Robbins, SW NE NE section 3-10n-5w, Crystal Township, made 100 bbls. an hour at 3,192 feet but was pinched in to 32 bbls. an hour showing a little water. Stork Oil Co. No. 5 George Dickenson, NW SW SE same section, made 96 bbls. an hour but was pinched in to 30 bbls. hourly at 3,190 feet.

Michigan Producers & Refiners Corp. and Alvin H. Weber, trustee, No. 3 William Strait, NW NE SW, same section, had 2,000 feet of oil in the hole at 3,220 feet after topping the Dundee at 3,183 feet and was to be treated with acid before completion.

Black water was encountered at 3,201 feet in the McClanahan Oil Co. No. 1-C Harry and Geneva Flint, SE NW NW section 11, in which an attempt will be made to plug back for a water shutoff. Dundee limestone was topped at 3,181 feet and the first pay with several flows at 3,184 feet. The hole filled up to 1,800 feet at 3,187 feet.

Nearing Completion

Charles Van Keuren No. 1 Maud Evans, a Monroe test, had been cemented at 3,316 feet and was to be acid treated as soon as a successful water shutoff job was completed. It is located on a semiwildcat lease in section 22, Crystal Township.

Ferris Township

Although there were no new oil completions in the Ferris Township section of the Crystal field last week, T. F. Caldwell, Inc., was completing acid treatment of the No. 6 Jesse Flint, NE SW SW section 35-11n-5w, previously drilled to 3,190 feet. Its completion was delayed when a control head blew off.

Two Ferris Township projects were temporarily abandoned, namely George G. Hanners No. 1 Carrie Palmer, SW NW NW section 22, and R. A. Wells No. 1 Sam Bollinger, SW NW NW section 23.

J. E. Evans, trustee No. 1 James A. Duffield, SW NW SW section 25, was temporarily shut down at 2,513 feet, while two other Ferris tests were nearing the Dundee. They were the Gordon Oil Co. No. 2 W. C. Taylor, SE NW SE section 35, drilling at more than 2,900 feet, and Dougherty & Markey, Inc., No. 2 H. Fisher, NW SW SW section 36, which had been cased above the Dundee with a string of 5-inch.

George Hanners No. 1 C. H. King, SW NW NE section 26, same township, which was plugged back from water at 3,250 feet to a show of oil at 3,254 feet, was put on the pump and made 25 bbls. a day as a new small producer.

Other Montcalm Tests

Frank J. Asam No. 1 Fred Pakes, NE NE NE section 7-10n-6w, an Evergreen Township wildcat, was drilling at more than 3,000 feet after striking a show of oil and gas in the top of the Traverse limestone encountered at 2,804 feet.

Daily Crude Oil Co. No. 1 Clyde Long, NW SW NE section 10-12n-6w, Home Township, which made 108 bbls. natural in the Traverse at 3,096 feet, flowed 281 bbls. in eight hours after acid treatment and was rated at least good for 350 bbls. a day in the Home Township field.

Rex Oil & Gas Co. No. 1 Sanford Newland, NW NW NW section 2-12n-8w, a Cato Township, Montcalm County wildcat, was testing a show in the Traverse at 3,040 feet, 100 feet below the limestone top. It was plugged back from the Dundee sand.

The Sidney-Montcalm Oil Co. No. 1 Albert Madison, NW NW SW section 33-10n-7w, a Sidney Township wildcat in the same county, was shut down on top of the Dundee.

In Belvidere Township, Montcalm County, J. P. Mikesell No. 2 C. and I. Miller, C NW NW section 2-12n-7w, had a fishing job at 890 feet, while Fletcher & Leman No. 1 Milo Peterson, C SW NE section 11, same township, was cemented and ready to drill into the shallow gas sands.

Goff & Rabuck No. 1 Frank and Clara Williams, NE SW NE section 14, same township, was drilling in the Dundee, while the Michigan Exploration Co., Inc., No. 1 William J. Richardson, SW SW NE section 3, was drilling at more than 2,850 feet.

Midland County

The only Midland County completion of the week was Pure Oil Co. No. 2-B, on the Corning estate, C N NE NW section 12-13n-2w, Jasper Township, which was rated a 200-bbl. well after being treated with acid in the Dundee formation at a total depth of 3,444 feet.

Five others in three townships were nearing the Dundee. Braden & Saunders No. 1 Kate Stapleton, SE NW NE section 13-14n-2w, Greendale Township, drilling at 3,587 feet, and the Pure No. 3-B Joseph Novak, NW NE NE section 35, same township, drilling at 3,420 feet, were scheduled for completion this week.

Pure Oil Co. soon will complete its No. 1-A George H. Eldridge, C N NE SW section 2-13n-2w, Jasper Township, while two Porter Township tests, Pure No. 4-B Laura E. Root, SE SW SE section 7-13n-1w, and the same company No. 6-A Iva E. Bond, SE NW NE section 18, same section, drilling at 3,450 feet probably will be drilled into the Dundee this week.

The Pine River Oil Co. No. 1 H. Sims, C NE SE section 4-13n-1e, Mount Haley Township wildcat, was shut down at 2,462 feet awaiting tubing to shoot a show in the Berea at this depth.

Big Gasser in Mecosta

Two new gassers, one with an open flow capacity of 17,200,000 feet daily and the other gauged at 1,650,000 feet a day, were completed in the Michigan Stray sands in Hinton and Millbrook Townships, Mecosta County.

The big well was brought in by Hendershot and McMillen, the first on their Walter Mackey lease, C NW NE section 26-13n-8w, Hinton Township. It was the biggest ever struck in this section of the Millbrook-Hinton-Belvidere Townships field of Mecosta and Montcalm Counties now approaching an aggregate open flow capacity of 400,000,000 feet a day as Michigan's largest gas field.

Wiser Oil Co. No. 1 Wilson-Perkins, C NE NW section 34-13n-7w, Millbrook Township, was the smaller well which topped the Michigan Stray

sands at 1,310 feet and was drilled 21 feet in to 1,331 feet. Pay was encountered at 1,313 feet.

Taggart Brothers, Inc., were drilling at more than 3,550 feet in their deep test on the No. 5 Robert Fish, C NW NW section 9-14n-9w. Larson & Flynn No. 1 Amol Swanson, C NW SE section 11-13n-10w, an Aetna Township wildcat was still shut down at 1,325 feet after failure to strike commercial production in the gas sands.

Goll, Graves & Mechling No. 1 M. Ruetz, SE NE SE section 17-14n-7w, a Wheatland Township wildcat, was shut down just above the Dundee but expected to complete soon.

Ogemaw County

Melling Oil & Gas Co., one of the most fortunate operating concerns in Ogemaw County pools, brought in a 400-bbl. well last week in the No. 6 State of Michigan, NW SW NW section 6-21n-3e, Mills Township. It was a Traverse producer topping the upper limestone at 1,685 feet and completing at 1,810 feet.

Durham & Jones completed their No. 1 W. F. Wiechers, NE SW SE section 1-21n-2e, on the southwest edge of the Mills-Horton Townships pool as a small well making 15 to 20 bbls. a day after acid treatment. Dundee was topped at 2,479 feet and the hole completed at 2,631 feet.

Gordon Oil Co. also struck a 20-bbl. natural production in No. 1 Charles Raymore, SW SE SW section 13-22n-1e, Ogemaw Township, and was planning to treat with acid. Total depth was 2,815 feet and Dundee top 2,695 feet.

Three other Ogemaw tests were completing in the Dundee and Traverse, including the Richfield Backus Oil Corp. No. 1 Linton and Mary Scott, SE NW NE section 18-23n-3e, Cumming Township. Weber Oil Co. No. 1 Frank Estey, SE NW SE section 28-22n-2e, West Branch Township, and Consolidated Petroleum Producers, Inc., No. 1 Evan Crow, NW NE SW section 36, West Branch.

The Crow well was experiencing trouble with water after a good initial showing of oil in the Traverse topped at 1,680 feet and drilled to 1,794 feet. The Estey well was shooting in the Dundee.

Louis Dery and O. S. Fowler also were drilling in the Dundee in their No. 2 Dery-Fowler-Wobig, SW NW NE section 6, Mills Township, which topped the limestone at 2,442 feet, expected to complete this week.

H. C. Nelson, of Muskegon, was shut down just above the Dundee in his No. 3 State of Michigan test, SE SW SW section 31-22n-3e, Churchill Township, at 2,465 feet.

Four other Ogemaw County tests were nearing completion in the Dundee sand. They were: Muskegon Development Co. No. 1 Nettie B. Watson, NW SE NW section 5, Cumming Township, at 2,347 feet; Charlotte G. Marsh, trustee No. 1 State of Michigan, NW NE SW section 6, Mills Township, drilling at 2,350 feet; Morris-Barnes Oil & Gas Syndicate No. 2 Golf Course, SW SW SE section 20, West Branch Township, setting 5-inch casing at 2,627 feet, and Weber Oil Co. No. 1 State Department of Conservation, SW SE SE section 36, also in West Branch, casing at 2,613 feet.

Saginaw County

Smith Petroleum Co. struck a dry hole in the No. 2 Charles W. Bois, NE NW NE section 20-10n-6e, Birch Run Township, Saginaw County, to be plugged in the Berea at 1,557 feet. The formation was topped at 1,532 feet. No. 1 on the same lease was completed about a month ago as a small producer in the Berea.

Western Michigan

Three wildcat oil tests were active last week in Newaygo County where more than 25 attempts to discover commercial production northeast of the Muskegon field have been made in western Michigan during the past six years.

E. M. Neff and others had reached a depth of about 2,000 feet in their No. 1 Mabel L. Sippy test, on the line between sections 26 and 27-16n-13w, Lilly Township. It was the deepest of the three.

J. Garfield Buell and Seth W. Herndon of Oklahoma, who hold leases on a block of about 3,000 acres, had reached a depth of more than 650 feet in their first test on the block, the No. 1 Marion Smith, NW NE NW section 29-14n-11w, Goodwell Township, near White Cloud.

A new test also had been started on the Edward Vera lease in section 5, Wilcox Township.

Gratiot County

A dry hole was completed in North Shade Township, Gratiot County, by T. F. Caldwell, Inc., drilling a wildcat on the William Brannon lease, SW NW NE section 6-9n-4w. Water was encountered at 3,200 feet and drilling was suspended for abandonment at 3,214 feet. Dundee was topped at 3,149 feet.

Operators were delayed in completing Charles E. Weller No. 1 Milton P. Saxon, SW SW NW section 28-9n-3w, a Fulton Township wildcat which was drilling at more than 3,000 feet and expected to be in the Dundee this week.

Wildcats

Rex Oil & Gas Co. was drilling into the Dundee in an Ovid Township, Clinton County wildcat test, the No. 1 J. E. Parker, NW NW NE section 32-7n-1w, cased below the Traverse at 2,715 feet.

Two Genesee County tests also were being watched as they drilled toward the Dundee. They were the Rowmor Corp. No. 1 George Gillespie, SW SW SW section 3-5n-5e, Argentine Township, drilling below 2,050 feet and the Smith Petroleum Co. No. 1 Thomas A. Jolly, NW NW NW section 5-9n-8e, Forest Township, drilling at about 2,450 feet.

Sun Oil Co. ran casing in its No. 1 William E. Woodward, SW SE SE section 24-19n-3w, a Hamilton Township, Clare County wildcat at 3,801 feet.

Deep River Oil Co. No. 1 Stokaszynski, NE SE SW section 27-19n-4e, Deep River Township, Arenac County, had reached a depth of more than 2,750 feet.

L. B. Ryres, trustee was drilling at more than 2,850 feet in his Tuscola County wildcat, the No. 1 Herman Kindler, NW SE NW section 24-15n-8e, Akron Township.

New Locations

Sixteen new state permits included locations for seven gas tests and six for oil in proved fields and three on wildcat locations for either oil or gas.

The three wildcat permits call for the following tests: Charles W. Teater No. 1 Nevins, NW NW NE section 18-32n-6e, Long Rapids Township, Alpena County; Mountain Oil & Gas Co. No. 1 Archie Walter, SW NW NE section 17-11n-2w, Emerson Township, Gratiot County, and Lee Brown No. 1 Gyde, NW NW SW section 5-2s-8e, Canton Township, Wayne County, near Detroit.

Six of the seven new gas tests will be drilled in the Millbrook-Hinton-Belvidere Townships field of Mecosta and Montcalm Counties as follows: Charles H. Bell No. 1 L. C. Culey, C SE SW section 30-13n-7w, and the Gordon Oil Co. and Edward Stewart No. 4 Garner Brothers, C SE SE section 32, both in Millbrook Township, and four in Belvidere Township, Montcalm County, including Reginald M. Burch, trustee No. 1 James H. and Inez C. Morse, C SE NW section 2-12n-7w; Superior Drilling & Producing Co. No. 1 Milton Eckert, C SW NE section 10; Ide & Glavin Gas Co. No. 2 Isabel Wood, C NE NE section 10, and Edward Stewart No. 1 F. L. Peterson, C NE NW section 12.

Crystal Oil & Gas Co. took out a permit for No. 2-B John B. Shaver, C SW NE section 4-15n-4w, a New Haven Township, Gratiot County gas test.

The new oil tests include two in Isabella County, one in Midland and three in Montcalm County, including two in the Crystal field and one in the Home Township, Traverse field.

They were: Chartiers Oil Co. No. 1 Frank Mumy, NE NE NW section 3-14n-3w, Chippewa Township, and the same company's No. 2 J. B. West, C W half SE SE section 12-15n-4w, Isabella Township, the two in Isabella County; St. Louis Pipe & Supply Co. No. 1 Ruby Greene, SW NE NE section 13-13n-2w, Jasper Township, Midland County; Daily Crude Oil Co. No. 4 John Tow, NE NW SW section 2-10n-5w, and the Pure Oil Co. No. 1 Ernest Stedman, SW NW SE section 11, both in Crystal Township, and Daily No. 3 H. J. Hansen, SW NE NW section 10-12n-6w, Home Township, Montcalm County.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM Ontario, Dec. 21. — In the far south end of the Turner Valley field, Union-Freehold Oil Corp. No. 1, LSD 8, section 21-18-2w5, struck a fairly heavy wet gas flow about 60 feet in the lime at 5,660 feet. It got the lime around 5,600 feet and cemented at 5,640 feet, encountering the first gas showing shortly after drilling through the cement. Samples show a true lime, indicating that the test is on structure. Location is approximately a half mile south of Highwood-Sarcee Oils No. 1, LSD 16, same section, which is the southernmost producer in the field. The test was started originally by the Union Drilling Co. of Calgary, and later the Freehold Oil Corp. took an interest in its completion. Work was held up for several months owing to a fishing job which necessitated cementing back and sidetracking from about 5,075 feet to the top of the Madison.

Farther south, Highwood - Sarcee Oils' No. 2, LSD 1, same section, is below 1,500 feet. This is the southernmost active test in Turner Valley, being about a half mile south of Union-Freehold No. 1.

In section 28-18-2w5, British Dominion Oil & Development Corp. No. 4, LSD 8, is deepening below 6,276 feet, drilling one tour and taking production two tours. It is more than 438 feet in the Madison limestone in the second porous horizon with an increasing gas flow. The gas-oil ratio is increasing, the recovery being a greenish-brown naphtha, indicating a substantial proportion of crude. Production is officially estimated around 100 bbls. a day. Location is on the west side of the structure where several of the wells farther north, including Model Oils' No. 1 in North Turner Valley gave high-grade crude instead of naphtha. Farther south in the same section, Renfrew Royalties' No. 1, Morris & Goodfellow, LSD 3, is standing cemented in the top of the lime at 6,020 feet and bailing crude accumulated in the hole. It will be deepened into the lime.

In the northwest corner of section 28-18-2w5, Turner Valley Royalties No. 1, LSD 13, will be completed as part of the British-American Oil Co. drilling program. It is a west side test located west of Century Royalties No. 1 producer, and has 10-inch casing run to bottom at 3,180 feet. Steel derrick is being erected and rotary tools will be used to complete the test. Drilling will resume toward the end of December.

North Turner Valley

In North Turner Valley, Model Oils No. 3, LSD 1, section 22-20-3w5, is cleaning out after a heavy shot and will test production from the lime at 6,240 feet. Farther east, Royalite Oil Co. No. 27, LSD 4, section 23-20-3w5, is below 3,165 feet.

Aldersyde Operations

On the Aldersyde structure east of Turner Valley, Ranchmen Gas & Oil Co. No. 1, LSD 16, section 13-20-28w4, is deepening below 6,660 feet in a hard formation. While shut in it took a small recovery of white naphtha from the drips, but when the tools were run light green crude was standing a considerable height in the hole. No estimate of potential production has been made. Some 2½ miles southwest of Ranchmen No. 1,

Globe Royalties No. 1, LSD 3, section 2-20-29w4, has derrick and camp buildings up and is moving a heavy-duty standard outfit to location. It will probably spud late in December. Location is believed nearer the center of the structure than the Ranchmen's well. In the same general area, New Federal Oils, Ltd., has secured LSDs 4 and 5, section 23-20-28w4, about 4 miles east of the old Federal Oils No. 1. The latter, drilled in NE quarter section 22-20-28w4, about 4 miles east of the old Federal Oils No. 1. The latter, drilled in NE quarter section 22-20-28w4, about 20 years ago, quit at 2,300 feet after getting gas shows in two horizons.

Tests in the Foothills

In the Forest Reserve area west of Olds, Hunter Valley Oil Co. No. 1 McLaren, LSD 12, section 13-31-10w5, is deepening in a lime formation below 5,332 feet.

On the Moose Dome west of Calgary, Moose Oils No. 2, LSD 8, section 29-22-6w4, is at 252 feet, waiting for cement.

On the Highwood-Sinclair structure south of Turner Valley, Maple Leaf Royalties No. 1 Banner, LSD 6, section 34-17-3w5, is at 2,595 feet waiting for casing which cannot be hauled owing to bad roads. Farther south on the Pekisko structure, Pekisko Hills Co. No. 1, LSD 6, section 6-17-2w5, is shut in at 3,455 feet. A recent inspection showed strong gas pressure with a small show of oil.

On the Watson structure north and west of Lundbreck, Mar Jon Oil Co. No. 3, LSD 3, section 4-10-2w5, is below 3,860 feet and maintaining a gas flow from the Blairmore formation more than sufficient for drilling and camp requirements.

In the Waterton Lakes area, Oil City Royalties No. 1, section 30-1-30w4, is around 2,400 feet with additional gas.

On the Pincher Creek structure, Weymarn Petroleums No. 2, LSD 5, section 7-6-1w5, is below 4,570 feet with a decided increase in gas, the pressure lifting the rotary mud in the hole. Paul von Weymarn, president and managing director, states that the samples do not look like the lime, in which commercial production is expected, and there are no sands at this depth to account for the gas show.

Drilling in Ontario

In the Dover field, Kent County, Ontario, Massey Oil & Gas Co. No. 1 William Cook farm, Lot 12, Front Concession Dover East Township, is shut down at 3,374 feet after drilling 470 feet in the limestone without a show. It may be deepened. Location was south of Pain Court and several miles east of the proven field. In Dover West Township, Central Pipe Line Co. No. 4, John Jubenville farm, Lot 2, Front Concession, finished in the Trenton limestone at 3,360 feet with about 30,000 feet a day and is being shot with 620 quarts. Central Pipe Line Co. No. 5, Eli Jubenville farm, west of No. 4, is spudding. South of the River Thames, E. P. Rowe No. 2 Bruette, Lot 5, Front Concession, some 600 feet south of No. 1, is below 600 feet. It got the lime 20 feet high. Rowe No. 1 Bruette is waiting for additional equipment to test oil production from the Trenton limestone.

In the DeClute field, Kent County, Union Gas Co. No. 31, Lot 140, Talbot Road, Raleigh Township, is below 850 feet. Near Charing Cross, Ladd & Knight No. 3, Lot 24, Concession 11, Raleigh Township, is around 1,500 feet with a small show of gas.

In Chatham Township, Kent County, Union Gas Co. No. 2, Lot 5, Concession 13, is below 800 feet.

In Dawn Township, Lambton County, F. F. Gregory & Son No. 1, Lot 22, Concession 3, is fishing at 1,150 feet. Gregory No. 2, S half E half Lot 22, Concession 2, is below 320 feet.

In the Eden field, Elgin County, Central Pipe Line Co. No. 2, Williams farm, finished around 1,350 feet with an open flow of 256,000 feet a day. It was shot with dynamite, and measured 975,000 feet less than an hour later, with a probable settled production of 500,000 feet. Canadian Gas Co. No. 4 (C. A. Simpson and associates) Bayham Township, has a natural flow of about 45,000 feet a day in the sweet gas sand below 1,300 feet. A shot increased this to around 100,000 feet. Olga Oil & Gas Co. No. 1, Wilson farm, Lot 24, Concession 8, Bayham Township, is rigged. Dave Lauer is rigging Central Pipe Line Co. No. 3 on the Ball farm.

Border Fields

On the Del Bonita structure in the southern Alberta border area, Terminal Oil Co. No. 1, H. Orcutt location, NE section 18-1-21w4, is standing at 5,073 feet after entering the porous lime at 5,027 feet. The wet gas flow is estimated around 10,000,000 feet a day with some crude testing 38.7 Baume. Tubing has been run and a production test is being made. Shows of naphtha were met in the Ellis shale from 4,987 feet to the Ellis-Madison contact with 500,000 feet of wet gas at the contact, the naphtha shows continuing for about 15 feet when the first crude was encountered. After an initial production test, the well will likely be treated with acid before being deepened.

On the Twin River structure, E. H. Rosenburg No. 3 Twin River has spudded and is below 300 feet.

On the Comrey structure, southeastern Alberta, McDougall-McLeod Oil Co. No. 1, section 9-1-5w4, is below 2,655 feet carrying 8-inch casing.

Highway Safety Work

Capt. A. A. Nichoson, of Texas Co., New York, has been appointed chairman of a Public Relations Committee organized by the Petroleum Section of the National Safety Council to make a study of the traffic problem. Members of the committee are: R. S. Bonsib, Standard Oil Co. of New Jersey, New York; Glenn Byers, Shell Petroleum Corp., St. Louis, Mo.; R. E. Donovan, Standard Oil Co. of California, San Francisco, Calif.; G. O Lockwood, Empire Companies, Bartlesville, Okla., and C. W. Smith, Standard Oil Co. (Indiana), Chicago. R. B. Roaper, Humble Oil & Refining Co., Houston, Tex., as chairman of the section, and H. N. Blakeslee, American Petroleum Institute, Dallas, Tex., section, secretary, are ex-officio members.

Arthur B. Brown, geologist, has just returned from eastern Arabia, where he served two years with the California Arabina Standard Oil Co., subsidiary of the Standard Oil Co. of California. He is now connected with the geological department of the California Co., another subsidiary, at Midland, Tex.

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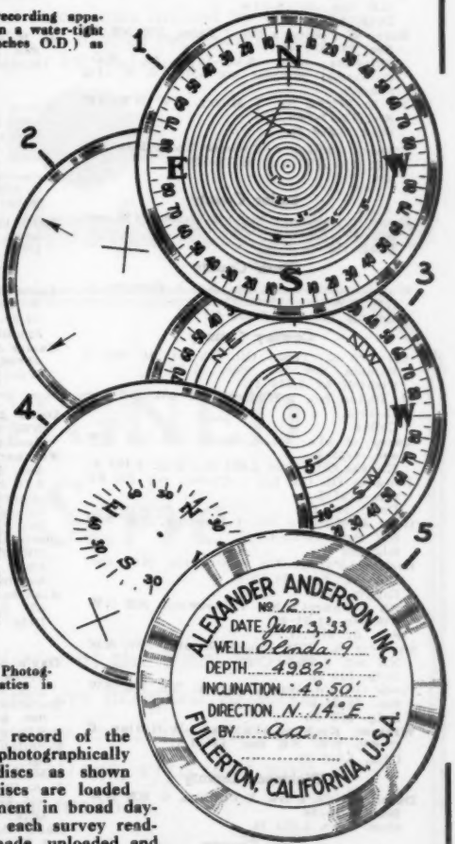
No. 2 is a Code Disc giving the same reading which can only be interpreted with code readers. This is for confidential records.

No. 3 is for inclinations up to 10 degrees. The reading shown is an inclination of 4° 50′ in a direction of N. 14° E.

No. 4 records inclinations up to 65 degrees. The inclination is read with a transparent reader; the direction is read directly from the disc. The reading shown is an inclination of 45° in a direction of S. 12° W.

No. 5 is the back of disc No. 3.



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WILDCAT OPERATIONS

KANSAS WILDCATS

Week Ending December 21

(Descriptions are East unless marked otherwise)

Barton County

Buchanan & Alexander No. 1 Langfeld, NE NE SW sec. 14-20-11w. Cellar.

John Burton No. 1 Wendel, NE cor. sec. 13-19-11w. Rig.

Hilligoss et al No. 1 Schmidt, NE cor. Sec. 27-19-11w. Rigging up.

Lario O. & G. Co. et al's No. 1 Smith, SW NW NW Sec. 26-18-12w. Drlg. 2,285 ft.

Morgan & Flynn et al No. 1 Amerine, NE cor. sec. 14-19-14w. Rigging up.

Morgan & Flynn et al No. 1 Zimmer, SE SE SW sec. 20-19-14w. Cellar.

Murphy & Morgan's No. 1 Robinson, NE NE SW Sec. 21-16-14w. Rigging up.

Torry & Feaster No. 1 Kimpler, SE NE NE Sec. 31-18-11w. Drlg. 2,255 ft.

Torry & Feaster's No. 1 Feist, NE NE SE Sec. 29-18-11w. Siliceous lime 3,420-32½ ft., T.D.; Potential; pumped 346 bbls. oil in 18½ hours.

W. E. Witt's No. 1 Murry, NW NW SW Sec. 14-17-14w. Drlg. 2,350 ft.

Yarnell, Carlson & Spencer No. 1 Bloomer, NE NE NW sec. 36-17-11w. Rig.

Butler County

Pryor & Lockhart No. 1 Boucher, NW cor. sec. 19-27-4. Bldg. rig.

Clark County

Watchorn O. & G. Co. No. 3 Stevens, C NW NW sec. 21-32-21w. Cmtng. cave at 6,420 ft.

Cowley County

Aylward & Trees Oil Co. et al No. 1 Shields, SW cor. Sec. 17-32-6. Fishing at 1,630 ft.

M. Baden No. 1 Hourer, NW SW NE sec. 12-30-3. Cellar.

Carey et al's No. 1 Short, NE NE NW sec. 6-32-4. Kansas City lime 2,445 ft.; drlg. 2,490 ft.

Penwest Oil Co. No. 1 Clover, NE SE SE sec. 8-31-7. Drlg. 200 ft.

Reed & Milligan No. 1 Houston, NW NW SW Sec. 10-31-4. Rigging up.

Roth & Farout No. 1 Guthrie, NW cor. Lot 14, Sec. 30-32-8. Rigging up.

Roth & Faurot's No. 1 Sherwood, NE NW SW sec. 11-31-4. S.D. at 375 ft.

Shawver & Wilt No. 1 Baruth, SW NW NE sec. 3-34-3. Drlg. 315 ft.

Trees Oil Co. No. 1 Garber, NE NE SW Sec. 28-31-5. Drlg. 550 ft.

Winkler, Koch et al's No. 1-B Harlan, C C S½ NW NE Sec. 13-31-7. Drlg. 1,406 ft.

Dickinson County

Dutch Oil Co.'s No. 1 Phillips, C NE NW Sec. 15-16-1e. Shut down 3,525 ft.

Ellis County

Lario Oil & Gas et al No. 1 Walter, SE NE SW Sec. 2-12-18w. Rig.

Shawnee Oil Co. No. 1 Koblitz, SE SW NW Sec. 23-12-18w. Rigging up.

Twin Drlg. Co.'s No. 1 Goetz, SW SW SE Sec. 3-14-17w. Oswald 2,273-3,302 ft.; T.D.; pumped 214 bbls. oil in 24 hours; will acidize.

Ellsworth County

Empire Oil & Refining Co.'s No. 1 Dolchek, SW cor. sec. 7-14-7w. Drlg. 2,409 ft.

Graham County

Cusco Oil Co.'s No. 1 Kaufman, C NE NE Sec. 18-6-24w. Location abd.

Vickers Pet. Co. & Phillips Pet. Co.'s No. 1 Hutton, 430 ft. from E line and 330 ft. from N line of SE¼ Sec. 29-6-22w. Fishing at 949 ft.

Grant County

Piney Oil & Gas Co.'s No. 1 Kennedy, C SW¼ Sec. 19-29-36w. T.D. 2,740 ft.; I.P. 10,000,000 ft. gas; complete.

Greenwood County

Anderson & McGinnis No. 1 Jensen, SE SE SW sec. 30-23-12. Spudding.

K. C. Dunn No. 1 Dawson, C NW NE sec. 27-26-13. Rigging up.

Mohawk Oil Co.'s No. 1-A Edgar, NE NE SW sec. 2-28-8. Drlg. 2,220 ft.

Harper County

Marathon Oil Co. No. 1 Zellers, C SW NW Sec. 17-35-8w. Drlg. 1,875 ft.

Harvey County

Ok-Tex Oil Co.'s No. 1 Osborne, C SE SE sec. 6-23-3w. Drlg. 2,065 ft.

Western Kansas O. & R. Co. No. 1 Warkentin, C SW SW Sec. 1-23-2w. Rig.

Haskell County

Helmerich & Payne's No. 1 Elliott, C SW Sec. 36-29-33w. Standardizing at 2,600 ft.

Kingman County

D. R. Lauck's No. 1 Skilling, SE NE SW Sec. 32-27-8w. Simpson 4,372 ft.; drlg. 4,456 ft.

Marion County

Milton et al No. 1 Young, NW NW SE sec. 17-21-3. Location.

Norton County

Helmerich & Payne et al No. 1 Collins, C NE Sec. 11-3-25w. Rotary rig.

Lario O. & G. Co. and Elwell's No. 1 Kennedy, SW SW NW Sec. 22-3-22w. Drlg. 1,562 ft.

Pratt County

Lario O. & G. Co., Ewell and Atlantic O P. Co. No. 1 Lemon, SE SE NW Sec. 12-29-13w. Spudding.

Skelly Oil Co. et al's No. 1 Comm. Gilchrist, C SE¼ Sec. 7-28-21w. Wilcox 4,340 ft.; drlg. 4,400 ft.

Reno County

Dowe & Dustin's No. 1 Ghormley, C NE NW Sec. 17-24-7w. Spudded and shut down.

Foraker et al's No. 1 Hiett, SE SW NE Sec. 34-24-4w. S.D. at 1,580 ft.

McPherson Drlg. and Derby Oil Co. No. 1 Scheuchzer, NE SE SW Sec. 17-24-4w. Set 12-in. csg. at 263 ft.; waiting.

Olson Drlg. Co. et al No. 1 Krantz, NE NE SE Sec. 13-25-5w. Chat 3,532 ft.; set 8-in. at 3,540 ft.; waiting.

Rose Spring & Foraker No. 1 Brauer, SW SW SE Sec. 4-26-4w. Drlg. 1,100 ft.

Rice County

Day's No. 1 Mason, NW NE NE Sec. 28-21-7w. U.R. 6-in. at 3,350 ft.

Permian Oil Co. No. 1 Monroe, C NE NE Sec. 9-20-7w. S.D. at 1,110 ft.

Permian Oil Co. No. 1 Conner, C NE NE sec 28-19-7w. K.C. lime 2,890 ft.; drlg. 2,960 ft.

C. E. Skiles et al No. 1 Edwards, NW NW NE Sec. 3-18-8w. Drlg. 1,755 ft.

Tabor-Coleman and Atlantic O. P. Co. No. 1 Tharp, C NW NW Sec. 33-21-4w. K.C. lime 2,925 ft.; drlg. 2,960 ft.

Vernon Oil & Gas and Cusco Oil Co. No. 1 Boldt, NW SW NW Sec. 10-19-10w. Fishing at 535 ft.

L. H. Wentz No. 1 Bushong, SW cor. Sec. 10-21-10w. Drlg. 2,120 ft.

W. E. Witt's No. 1 Hall, SE SE NW sec. 2-20-9w. Rig.

Rooks County

F. A. Gillespie & Sons' No. 1 Low, NE NE NW Sec. 13-6-18w. U.R. 8-in. at 2,600 ft.

Murfin et al's No. 1 Wasthusta, NE NE SE Sec. 15-9-16w. Skid rig 25 ft. north; S.D. at 125 ft.

Pryor & Lockhart's No. 1 Bradley, SW SW NE sec. 31-10-16w. Moving in material.

Rush County

R. G. Berry et al No. 1 Cook, NE NE SE sec. 19-11-19w. Location.

Torrey & Feaster et al No. 1 Winget, SE cor. Sec. 15-16-16w. Moving in material.

Russell County

Central Petroleum Co.'s No. 1 Benso, SE SE SW sec. 9-14-15w. Location.

Central Pet. Co.'s No. 1 Boxberger, NW cor. Sec. 35-15-15w Oswald 3,137 ft.; T.D. 3,155 ft.; acidized with 2,000 gals.; potential, pumped 884 bbls. oil; complete.

Coralena Oil Co. No. 1 Disken, SE cor. Sec. 30-15-13w. Drlg. 360 ft.

Empire O. & R. et al No. 1 Major, SE cor. Sec. 11-14-12w. Location.

Hartman & Blair et al No. 1 Boxberger, NW NW SW Sec. 32-13-14w. Rigging up.

P. G. Reynolds No. 1 Fredrickson, SE SW SE sec. 6-13-12w. S D. at 365 ft.

Sam Murphy et al's No. 1 Enschutz & Schaffer, SW cor. Sec. 10-15-13w. Drlg. 1,025 ft.

Murfin et al's No. 1 Gorham estate, NE NE SE Sec. 29-14-16w. Oswald 3,020 ft.; ¼ bbl. oil per hr. at 2,105 ft.; drlg. 3,246 ft.

Phillips Petroleum Co. and Sinclair Prairie Oil Co.'s No. 1 Driscoll, NW NW SE sec. 31-15-11w. Drlg. 3,017 ft.

Warren Oil Co. No. 1 Bratton, SE cor. Sec. 25-11-13w. Drlg. 370 ft.

Winkler & Koch No. 1 McAllister, NE NE SE Sec. 9-12-13w. Rig.

Stafford County

L. A. Farris et al No. 1 Snyder, SE SE NW sec. 3-21-11w. Building rig.

Herndon Drlg. Co. and Atlantic O. P. Co. No. 1 Russell, C SE NW sec. 20-21-14w. Topeka 2,980 ft.; drlg. 3,420 ft.

Sumner County

Helmerich & Payne No. 1 Wright, SE SE NW Sec. 10-33-2. Drlg. 270 ft.

Orcutt & Stewart's No. 1 Newton, SE cor. Sec. 21-30-2. S.D. at 50 ft.

C. Pulse's No. 1 Buss, NW cor. Sec. 12-32-2. K.C. lime 2,590 ft.; drlg. 2,650 ft.

D. J. Wilson et al's No. 1 Clara, 4,320 ft. from W and 25 ft. from S line of NW Sec. 15-35-1w. S.D. at 2,670 ft.

Trego County

Central Commercial's No. 1 Wagg, NW NW SE Sec. 17-13-21w. S.D. at 3,000 ft.

Vickers et al's No. 1 Secor, NW NW NW Sec. 25-15-24w. Small show oil at 4,488-91 ft.

Woodson County

Coulter, Davidson et al's No. 1 Paske, NW NW SE sec. 25-25-13. T.D. 1,500 ft.; dry and abd.

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Shell Oil Co., No. 11 Capitan, Santa Barbara Co.	5- 4-30	2,718	O.S. drlg.
General Petroleum, No. 15 Capitan, Santa Barbara Co.	32- 5-30	323	suspended
General Petroleum, No. 16 Capitan, Santa Barbara Co.	5- 4-30	....	rig; suspended
Honolulu Oil Corp., No. 9 Elwood, Santa Barbara Co.	tideland	5,065	gas blow out
Barnsdall-Rio Grande, No. 12 Elwood, Santa Barbara	15- 4-29	6,763	sd. sh. drlg.
Barnsdall-Rio Grande, No. 6 Elwood, Santa Barbara.	15- 4-29	3,610	cleaning out
Barnsdall-Rio Grande, No. 2 Elwood, Santa Barbara.	15- 4-29	6,492	suspended
Bankline Oil Co., No. 10 Elwood, Santa Barbara Co. ..	tideland	3,740	hd. sd. drlg.
Pacific Western, No. 16 Elwood, Santa Barbara Co. ...	tideland	3,669	rig compr.
Signal Oil Co., No. 6 Elwood, Santa Barbara Co.	tideland	1,873	sd. sh. drlg.
Spalding, Caroline, No. 12 Elwood, Santa Barbara Co.	tideland	....	rigging up
Field, O. C., No. 1 Santa Maria, Santa Barbara Co. ...	28-10-33	3,477	suspended
Fairview Oil Co., No. 1 Purisima, Santa Barbara Co.	18- 7-34	3,939	suspended
Anacapa Oil Co., No. 3 Mesa, Santa Barbara Co.	28- 4-27	1,990	sd. sh. drlg.
Mar Monte Oil Co., No. 1 Summerland, Santa Barbara	16- 4-26	1,504	suspended
Santa Barbara Oil, No. 1 Carpinteria, Santa Barbara	29- 4-25	1,096	sd. sh. drlg.
Dietzman, Julius, No. 1 Carpinteria, Santa Barbara Co.	8- 4-25	....	rigged up
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 3-20	8,116	suspended
Union Oil Co., No. 1 Bardsdale, Ventura Co.	12- 3-20	5,617	coring
Monticello Oil Co., No. 1 Bardsdale, Ventura Co.	12- 3-20	4,011	suspended
Duke Oil Co., No. 1 Bardsdale, Ventura Co.	7- 3-19	761	sd. sh. drlg.
Supreme Oil Co., No. 1 Sespe, Ventura Co.	1- 4-20	880	cleaning out
Bankline Oil Co., No. 1 Sespe, Ventura Co.	36- 5-20	1,181	sd. sh. drlg.
Topa Oil Co., No. 1 Sespe, Ventura Co.	33- 5-19	870	lr. sh. drlg.
Nelson & Co., No. 1 Sespe, Ventura Co.	28- 4-19	1,042	rd. sd. drlg.
The Texas Co., No. 1 Fillmore, Ventura Co.	29- 4-19	6,565	dry; abd.
Laying & Jacobs, No. 1 Shiells Canyon, Ventura Co. ..	32- 4-19	1,101	gr. sd. drlg.
El Rancho Oil Co., No. 1 South Mountain, Ventura Co.	9- 3-19	1,110	suspended
Bankline Oil Co., No. 2 South Mountain, Ventura Co.	3- 3-19	735	sd. sh. drlg.
Hull, James, No. 1 Santa Susana, Ventura Co.	2- 2-18	1,460	hd. sh. drlg.
Paloma Oil Co., No. 1 Santa Susana, Ventura Co.	12- 2-18	2,851	suspended
Boisa Chica Oil Co., No. 1 Temescal, Ventura Co....	4- 4-18	3,035	bailing
Dawson Oil Co., No. 1 Simi, Ventura Co.	5- 2-17	1,911	cleaning out
Ventura Expl. Co., No. 1 Saticoy, Ventura Co.	30- 3-22	7,073	P.B. 6,450
Prop. Service Corp., No. 1 Lloyd, Ventura Co.	24- 3-23	9,582	P. B. 9,050
General Pet., No. 1 Oxnard, Ventura Co.	26- 2-23	7,625	redrlg. 6,391
General Pet., No. 3 Rincon, Ventura Co.	tideland	3,680	gr. sd. drlg.
Honolulu Oil Corp., No. 2 Rincon, Ventura Co.	tideland	3,341	sd. sh. drlg.
Continental Oil Co., No. 2 Ojai, Ventura Co.	13- 4-23	964	sd. sh. drlg.
Continental Oil Co., No. 5 San Miguelito, Ventura Co.	15- 3-24	4,480	hd. sh. drlg.
Standard Oil Co., No. 1 Lost Hills, Kern Co.	2-26-20	5,824	recmt. 9 times
Cumberland Oil Co., No. 1 Devil's Den, Kern Co.	17-26-18	4,284	sd. sh. drlg.
Belmac Drlg. Co., No. 1 McKittrick, Kern Co.	22-29-21	4,562	hd. sd. drlg.
Belmac Drlg. Co., No. 2 McKittrick, Kern Co.	21-29-21	498	suspended
General Pet. Co., No. 1 South Belridge, Kern Co. ...	30-28-21	11,377	suspended
Standard Oil Co., No. 3 North Belridge, Kern Co. ...	36-27-20	8,005	reaming
Standard Oil Co., No. 4 North Belridge, Kern Co. ...	36-27-20	....	rig; suspended
Belridge Oil Co., No. 48-35 North Belridge, Kern Co.	35-27-20	4,658	suspended
Belridge Oil Co., No. 18-35 North Belridge, Kern Co.	35-27-20	741	sd. sh. drlg.
Belridge Oil Co., No. 6-1 North Belridge, Kern Co...	1-28-28	....	rigging up
Continental Oil Co., No. 6 North Belridge, Kern Co.	36-27-20	8,235	cmtd. 7,896
Union Oil Co., No. 20 North Belridge, Kern Co.	36-27-20	8,606	cmtd. 8,565
Union Oil Co., No. 21 North Belridge, Kern Co.	36-27-20	....	rigging up
Beck, Albert, No. 1 North Belridge, Kern Co.	35-28-20	786	gr. sd. drlg.
Ohio Oil Co., No. 1 Maricopa Flats, Kern Co.	11-11-22	7,310	sd. sh. drlg.
Woods & Bailey, No. 1 McFarland, Kern Co.	16-26-26	2,490	suspended
Standard Oil Co., No. 1 Delano, Kern Co.	1-25-23	2,455	gas; shut in
Standard Oil Co., No. 2 Delano, Kern Co.	1-25-23	3,256	gas; shut in
Standard Oil Co., No. 4 Delano, Kern Co.	34-24-23	2,460	gas; shut in
Standard Oil Co., No. 5 Delano, Tulare Co.	33-24-23	2,466	gas; shut in
Standard Oil Co., No. 6 Delano, Kern Co.	1-25-23	3,250	form. test
Trico Oil & Gas Co., No. 1 Delano, Kern Co.	3-26-23	2,525	gas; shut in
Trico Oil & Gas Co., No. 5 Delano, Kern Co.	3-26-23	2,467	gas; shut in
Richardson & Heaston, No. 1 Kern Front, Kern Co. ...	5-28-28	2,567	will dpn.
McDonald & Dearin, No. 1 Kern Front, Kern Co. ...	10-28-27	2,020	O.S. drlg.
National Oil Co., No. 3 Kern Front, Kern Co.	11-28-27	1,720	rig to pump
National Oil Co., No. 4 Kern Front, Kern Co.	11-28-27	....	rig; suspended
Associated Oil Co., No. 6 Kern Front, Kern Co.	4-28-27	....	rigged up
C. C. M. Oil Co., No. 10 Kern Front, Kern Co.	23-28-27	2,056	cmtd. 1,770
C. C. M. Oil Co., No. 11 Kern Front, Kern Co.	23-28-27	....	rig; suspended
Kreighs, C. H., No. 1 Kern Front, Kern Co.	4-28-27	2,765	cmtd. 2,690
Standard Oil Co., No. 1 Kern Front, Kern Co.	5-28-27	2,765	sd. sh. drlg.
Standard Oil Co., No. 8 Kern Front, Kern Co.	24-28-27	....	rig; suspended
The Texas Co., No. 2 Kern Front, Kern Co.	23-28-27	2,040	cmtd. 1,806
The Texas Co., No. 3 Kern Front, Kern Co.	23-28-27	....	bldg. rig
Grace-Kern Oil Co., No. 1 Premier, Kern Co.	26-27-27	1,663	sd. sh. drlg.
Burcamba Oil Co., No. 1 Premier, Kern Co.	22-27-27	....	rig; suspended
Ohio Oil Co., No. 9 Premier Area, Kern Co.	32-27-27	2,676	sd. sh. drlg.

O. & F. Oil Co., No. 1 Premier Area, Kern Co.	32-27-27	2,311	suspended
O. & F. Oil Co., No. 2 Premier Area, Kern Co.	32-27-27	....	location
Elliott Oil Co., No. 1 Fruitvale, Kern Co.	14-29-27	....	bldg. rig
Aladdin Oil Co., No. 1 Mountain View, Kern Co.	19-30-29	....	rig; suspended
Barnsdall Oil Co., No. 5 Mountain View, Kern Co.	32-30-29	4,881	sd. sh. drlg.
Barnsdall Oil Co., No. 6 Mountain View, Kern Co.	30-30-29	6,032	sd. sh. drlg.
Gilmore-Snyder, No. 4 Mountain View, Kern Co.	24-30-28	3,952	sd. sh. drlg.
Union Oil Co., No. 10 Mountain View, Kern Co.	23-30-28	5,622	cleaning out
Hancock Oil Co., No. 9 Mountain View, Kern Co.	14-30-28	4,730	sd. sh. drlg.
Hogan Pet. Co., No. 8 Mountain View, Kern Co.	32-30-29	5,727	cmtd. 5,434
Buffalo Oil Co., No. 1 Mountain View, Kern Co.	19-30-29	....	rig; suspended
Sheldon Oil Corp., No. 1 Mountain View, Kern Co.	19-30-29	2,520	sd. sh. drlg.
Vesta Pet. Co., No. 2 Mountain View, Kern Co.	19-30-29	3,142	sd. sh. drlg.
Wood-Callahan Oil Co., No. 2 Mountain View, Kern	30-30-29	....	rigging up
O'Kane & Brain, No. 2 Mountain View, Kern Co.	30-30-29	4,992	sd. sh. drlg.
Mohawk Oil Co., No. 15 Mountain View, Kern Co.	30-30-29	5,960	tested wet
Mohawk Oil Co., No. 16 Mountain View, Kern Co.	30-30-29	4,952	sd. sh. drlg.
Mahawk Oil Co., No. 17 Mountain View, Kern Co.	30-30-29	1,197	sd. sh. drlg.
Ohio Oil Co., No. 1 Mountain View, Kern Co.	33-30-29	5,999	reaming
Ohio Oil Co., No. 2 Mountain View, Kern Co.	33-30-29	3,000	sd. sh. drlg.
Shell Oil Co., No. 5 Mountain View, Kern Co.	32-30-29	6,062	will recmt.
Shell Oil Co., No. 6 Mountain View, Kern Co.	32-30-29	....	rigging up
Standard Oil Co., No. 15 Mountain View, Kern Co.	13-30-28	5,290	flow. 428 b.d.
Standard Oil Co., No. 16 Mountain View, Kern Co.	13-30-28	5,141	O.S. drlg.
Standard Oil Co., No. 19 Mountain View, Kern Co.	24-30-28	5,143	cmtd. 5,126
Standard Oil Co., No. 20 Mountain View, Kern Co.	24-30-28	5,470	cmtd. 5,442
Standard Oil Co., No. 21 Mountain View, Kern Co.	24-30-28	2,131	sd. sh. drlg.
Standard Oil Co., No. 22 Mountain View, Kern Co.	24-30-28	1,983	sd. sh. drlg.
Treasure Oil Co., No. 1 Mountain View, Kern Co.	12-30-28	....	material
Mountain View Oil Co., No. 1 Mountain View, Kern Co.	25-30-28	5,650	suspended
Jergins Trust, No. 5 Mountain View, Kern Co.	24-30-28	5,800	sidetrack. D.P.
Jergins Trust, No. 6 Mountain View, Kern Co.	30-30-29	5,797	O.S. drlg.
United Expl. Co., No. 1 Bakersfield, Kern Co.	25-30-27	3,755	will dpn.
Shell Oil Co., No. 2 Coffee Canyon, Kern Co.	7-28-29	1,721	cmtd. 1,586
H. & L. Oil Co., No. 1 Round Mountain, Kern Co.	2-28-28	....	bldg. rig
Mountain Pet. Co., No. 1 Round Mountain, Kern Co.	24-28-28	....	rigged up
Jergins Trust, No. 14 Edison, Kern Co.	13-30-29	1,229	tested wet
Jergins Trust, No. 15 Edison, Kern Co.	13-30-29	1,500	P.B. 1,366
Jergins Trust, No. 16 Edison, Kern Co.	13-30-29	....	rigging up
Jergins Trust, No. 17 Edison, Kern Co.	14-30-29	....	rig; suspended
Jergins Trust, No. 18 Edison, Kern Co.	24-30-29	....	bldg. rig
North American Oil Co., No. 3 Edison, Kern Co.	14-30-29	1,445	O.S. drlg.
Shell Oil Co., No. 8 Edison, Kern Co.	16-30-29	4,510	rig. to pump
Shell Oil Co., No. 9 Edison, Kern Co.	15-30-29	3,021	pump. 35 b.d.
Shell Oil Co., No. 11 Edison, Kern Co.	15-30-29	....	location
Rogers Dev. Co., No. 1 Edison, Kern Co.	29-30-30	....	rigging up
Rogers & Osborne, No. 1 Edison, Kern Co.	19-30-30	1,447	P.B. 1,077
General Pet., No. 10 Edison, Kern Co.	24-30-29	1,428	pump. 460 b.d.
General Pet., No. 12 Edison, Kern Co.	24-30-29	632	sd. sh. drlg.
General Pet., No. 13 Edison, Kern Co.	24-30-29	....	rig; suspended
Union Oil Co., No. 3 Edison, Kern Co.	14-30-29	....	location
Seeple, J. O., No. 1 Elk Hills, Kern Co.	5-30-24	5,265	suspended
Hutcheson & Osborne, No. 2 Arvin, Kern Co.	32-30-30	1,380	suspended
Caloren Oil Co., No. 1 Midway, Kern Co.	27-32-23	....	bldg. rig
Arlington Prop., No. 1 Buttonwillow, Kern Co.	6-28-23	3,235	gas; shut in
Milham Exploration Co., No. 5 Buttonwillow, Kern Co.	5-28-23	3,127	gas; shut in
The Texas Co., No. 1 Buttonwillow, Kern Co.	6-28-23	2,435	gas; shut in
The Texas Co., No. 2 Buttonwillow, Kern Co.	8-28-23	2,475	gas; shut in
Superior Oil Co., No. 1 Semi-Tropic, Kern Co.	23-27-23	2,418	gas; shut in
Superior Oil Co., No. 2 Semi-Tropic, Kern Co.	34-27-24	8,710	sd. sh. drlg.
Fullerton Oil Co., No. 1 Semi-Tropic, Kern Co.	1-27-22	2,391	gas; shut in
Fullerton Oil Co., No. 2 Semi-Tropic, Kern Co.	14-27-23	2,463	gas; shut in
Fullerton Oil Co., No. 3 Semi-Tropic, Kern Co.	9-27-23	3,150	gas; shut in
Fullerton Oil Co., No. 4 Semi-Tropic, Kern Co.	26-27-23	2,395	gas; shut in
Fullerton Oil Co., No. 5 Semi-Tropic, Kern Co.	8-27-23	2,347	gas; shut in
Fullerton Oil Co., No. 6 Semi-Tropic, Kern Co.	25-27-23	2,441	gas; shut in
Fullerton Oil Co., No. 7 Semi-Tropic, Kern Co.	26-27-23	2,437	gas; shut in
Fullerton Oil Co., No. 8 Semi-Tropic, Kern Co.	25-27-23	2,439	gas; shut in
Fullerton Oil Co., No. 9 Semi-Tropic, Kern Co.	26-27-23	2,431	gas; shut in
Fullerton Oil Co., No. 10 Semi-Tropic, Kern Co.	15-27-23	2,414	gas; shut in
Standard Oil Co., No. 1 Semi-Tropic, Kern Co.	8-27-23	3,200	gas; shut in
Standard Oil Co., No. 3 Semi-Tropic, Kern Co.	7-27-23	2,355	gas; shut in
Standard Oil Co., No. 6 Semi-Tropic, Kern Co.	8-27-23	2,361	gas; shut in
Standard Oil Co., No. 8 Semi-Tropic, Kern Co.	12-27-23	2,426	gas; shut in
Standard Oil Co., No. 13 Semi-Tropic, Kern Co.	6-27-23	2,408	gas; shut in
Standard Oil Co., No. 15 Semi-Tropic, Kern Co.	16-27-23	3,215	gas; shut in
Standard Oil Co., No. 17 Semi-Tropic, Kern Co.	16-27-23	3,051	gas; shut in
Milham Expl. Co., No. 1 Semi-Tropic, Kern Co.	15-27-23	3,122	gas; shut in
Milham Expl. Co., No. 2 Semi-Tropic, Kern Co.	15-27-23	2,429	gas; shut in
Milham Expl. Co., No. 3 Semi-Tropic, Kern Co.	15-27-23	2,385	gas; shut in
Milham Expl. Co., No. 4 Semi-Tropic, Kern Co.	24-27-23	2,486	gas; shut in
Comanche Oil Co., No. 1 Comanche, Kern Co.	15-32-29	5,394	suspended
Tejon Ridge Oil Co., No. 1 Comanche, Kern Co.	23-32-29	2,187	suspended
Ohio Oil Co., No. 1 Buena Vista, Kern Co.	31-31-26	5,302	gas; shut in
Ohio Oil Co., No. 4 Buena Vista, Kern Co.	32-31-26	1,951	sd. sh. drlg.
Silver Gate Oil & Gas Co., No. 1 Tejon, Kern Co.	7-10-19	3,005	cmtd. 3,585
Reserve Oil & Gas Co., No. 4 Tejon, Kern Co.	2-10-19	2,615	P.B. 2,609
Milham Expl. Co., No. 1 Huron, Fresno Co.	14-20-18	....	location
Pacific Expl. Co., No. 1 Kreyenhagen, Fresno Co.	17-21-17	1,600	suspended
Union Oil Co., No. 1 Lillis-Welsh, Fresno Co.	24-21-16	10,944	cleaning out
K. N. D. A., No. 54 Kettleman North, Fresno Co.	24-21-16	8,564	O.S. drlg.
Standard Oil Co., No. 2 Kettleman Middle, Kings Co.	29-23-19	7,885	P.B. 7,800
Pet. Sec., No. 1 Kettleman Middle, Kings Co.	30-23-19	7,461	br. sh. drlg.
Royalty Service Corp., No. 1 Pyramid Hills, Kings Co.	16-24-18	701	sd. sh. drlg.
Burch, I. L., No. 1 Cuyama, San Luis Obispo Co.	3-10-26	....	location
Farrel Pet., Well No. 1, San Luis Obispo Co.	18-31-12	1,924	sd. sh. drlg.
Birch-Royer Oil Co., No. 1 Pismo, San Luis Obispo Co.	33-31-13	1,200	sd. sh. drlg.
United Oil Co., Well No. 1, San Luis Obispo Co.	2-32-21	125	sd. sh. drlg.
Willett Oil Co., No. 1 Cholame, San Luis Obispo Co.	10-25-15	3,687	suspended
Milham Expl. Co., No. 1 Tulare Lake, Kings Co.	5-22-19	5,423	dry; abd.
Milham Expl. Co., No. 2 Tulare Lake, Kings Co.	13-20-18	....	location
Commonwealth Consd. Gas, No. 1 Tulare Lake, Kings	21-22-20	2,490	gas; shut in
Commonwealth Consd. Gas, No. 2 Tulare Lake, Kings	21-22-20	2,052	sd. sh. drlg.
Amerada Pet., No. 1 F.L.D., San Joaquin Co.	15- 2-5	9,690	P.B. 5,558
Amerada Pet., No. 2 F.L.D., San Joaquin Co.	15- 2-5	4,063	producing gas
Amerada Pet., No. 3 F.L.D., San Joaquin Co.	22- 2-5	4,060	producing gas
Amerada Pet., No. 4 F.L.D., San Joaquin Co.	23- 2-5	5,107	dry; abd.
Amerada Pet., No. 5 F.L.D., San Joaquin Co.	15- 2-5	....	rigging up
Pure Oil Co., No. 1 Chowchilla, Madera Co.	7-10-14	8,402	gas; shut in
Pure Oil Co., No. 2 Chowchilla, Madera Co.	8-10-14	5,186	sd. sh. drlg.
Pure Oil Co., No. 3 Chowchilla, Madera Co.	6-10-14	2,580	sd. sh. drlg.
Northern Counties Pet., No. 1 Tehama, Tehama Co.	25-24-3	5,031	recmtd. 4,904
Shell Oil Co., No. 1 Branch, Monterey Co.	34-24-10	6,811	sd. sh. drlg.
Clark, George, No. 1 Ducor, Tulare Co.	31-23-28	1,320	suspended
Ka ella Oil Co., No. 2 Terra Bella, Tulare Co.	12-23-27	853	hd. sd. drlg.
Buttes Oilfields, Well No. 3, Sutter Co.	11-15-1	5,340	recmtd. 4,944

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Larco Oil Co., No. 1 El Segundo, Los Angeles Co.	12- 3-15	7,600	suspended
Sovereign Oil Co., No. 1 El Segundo, Los Angeles Co.	22- 3-14	8,540	sd. sh. drlg.
Pioneer Holding Co., No. 1 Moneta, Los Angeles Co.	33- 3-14	4,320	cleaning out
McDowell, O. B., No. 1 Torrance, Los Angeles Co.	35- 3-14	2,733	sd. sh. drlg.
Imperial Pacific Oil Co., No. 1 Redondo, Los Angeles	6- 4-14	....	rigging up
Clark, T. R., No. 1 Redondo, Los Angeles Co.	6- 4-14	3,552	cmtd. 3,019
West American Oil Co., No. 1 Dominguez, Los Angeles	3- 4-13	961	sd. sh. drlg.
McAdams Expl. Co., No. 1 Palos Verdes, Los Angeles	31- 4-13	....	rigging up
Shell Oil Co., No. 1 Clearwater, Los Angeles Co.	13- 4-13	4,455	redrlg. 4,397
Clayton, G. L., No. 1 Long Beach, Los Angeles Co.	31- 3-12	6,765	suspended
Standard Oil Co., No. 12 Inglewood Deep, Los Angeles	8- 2-14	3,755	P.B. 3,689
Standard Oil Co., No. 13 Inglewood Deep, Los Angeles	8- 2-14	2,924	sd. sh. drlg.
Standard Oil Co., No. 14 Inglewood Deep, Los Angeles	8- 2-14	1,755	sd. sh. drlg.
Blackline Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,608	wet; susp.
Crest Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,703	P.B. 6,665
Anglo American Oil Co., No. 1 Del Rey, Los Angeles	27- 2-15	6,939	water witch
Union Oil Co., No. 18 Del Rey, Los Angeles Co.	27- 2-15	6,078	sd. sh. drlg.
Union Oil Co., No. 19 Del Rey, Los Angeles Co.	27- 2-15	....	rigging up
Union Oil Co., No. 20 Del Rey, Los Angeles Co.	27- 2-15	....	rigging up

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Treasure Oil Co., No. 1 Del Rey, Los Angeles Co.	27-	2-15	6,157	suspended
Yant Pet. Corp., No. 1 Newhall, Los Angeles Co.	1-	3-16	1,931	hd. sd. drlg.
Dabney Pet. Co., No. 1 Malibu, Los Angeles Co.	5-	2-18	....	rig burned
Eyer Pet. Co., No. 1 Compton, Los Angeles Co.	20-	4-13	1,097	sd. sh. drlg.
Monarch Oil Corp., No. 1 Topanga, Los Angeles Co.	5-	1-16	652	cleaning out
Standard Oil Co., No. 79 Montebello, Los Angeles Co.	2-	2-12	2,630	sd. sh. drlg.
Standard Oil Co., No. 80 Montebello, Los Angeles Co.	2-	2-12	....	bldg. rig
Standard Oil Co., No. 81 Montebello, Los Angeles Co.	2-	2-12	....	rigging up
Standard Oil Co., No. 82 Montebello, Los Angeles Co.	2-	2-12	2,176	sd. sh. drlg.
Butler, C. R., No. 1 Montebello, Los Angeles Co.	14-	2-10	....	rig; suspended
Woodward Oil Co., No. 2 Montebello, Los Angeles Co.	4-	2-11	3,135	sd. sh. drlg.
The Texas Co., No. 1 Montebello, Los Angeles Co.	5-	2-11	7,692	dry; abd.
The Texas Co., No. 13 Montebello, Los Angeles Co.	5-	2-11	5,823	fishing
Universal Consd., No. 3 Montebello, Los Angeles Co.	5-	2-11	5,607	P.B. 5,595
Universal Consd., No. 5 Montebello, Los Angeles Co.	5-	2-11	2,351	sd. sh. drlg.
Wilshire Oil Co., No. 1 Montebello, Los Angeles Co.	5-	2-11	6,372	reaming
Wilshire Oil Co., No. 2 Montebello, Los Angeles Co.	4-	2-11	3,981	cleaning out
Wilshire Oil Co., No. 3 Montebello, Los Angeles Co.	11-	2-11	4,297	suspended
North American, No. 1 Montebello, Los Angeles Co.	30-	1-10	5,597	hd. sd. drlg.
Hillman & Long, No. 1 Montebello, Los Angeles Co.	28-	1-11	5,396	hd. sd. drlg.
Frontier Oil Co., No. 1 Pico, Los Angeles Co.	7-	2-11	5,246	P.B. 4,990
Oil & Gas Associates, No. 1 Pico, Los Angeles Co.	9-	2-11	3,194	wet; susp.
Fraser, N. M., No. 1 Saugus, Los Angeles Co.	31-	4-16	360	hd. sd. drlg.
International Oil Dev., No. 1 Saugus, Los Angeles Co.	34-	5-16	2,250	P.B. 1,950
Great Coastal Oil Co., No. 1 Elsinore, Riverside Co.	36-	5-5	1,825	hd. sd. drlg.
Albert Pet. Co., No. 1 Murrieta, Riverside Co.	23-	7-3	2,786	hd. sd. drlg.
Commander Oil Co., No. 1 Newport, Orange Co.	29-	6-10	59	suspended
Twentieth Century Oil Co., No. 1 Huntington, Orange	36-	5-11	5,118	resume work
Leaseholders Dev. Co., No. 1 Atwood, Orange Co.	26-	3-9	4,086	sd. sh. drlg.
Cook Drlg. Co., No. 1 Anaheim, Orange Co.	28-	3-9	2,758	reaming
Standard Oil Co., No. 1 Anaheim, Orange Co.	34-	3-9	2,792	redrlg. 1,969
Tehama Pet. Co., No. 1 Chino, San Bernardino Co.	33-	2-8	3,060	P.B. 1,530

OKLAHOMA WILDCATS

Week Ending December 21

NORTHERN OKLAHOMA

Alfalfa County

Tex-O-Kan Oil Co.'s No. 1 Acre, C SW NE Sec. 14-24-11w.
Drlg. 4,793 ft.

Beaver County

Anderson & Kerr et al's No. 1 Davis, C SW SE Sec. 36-5-26 (Cimarron Meridian).
Tools stuck at 5,765 ft.

Beckham County

Benonine Oil Co. No. 1 Smith, SW cor. Sec. 17-8-23w.
Drlg. 1,150 ft.

Star Oil Co.'s No. 1 Blair, C NW SE Sec. 32-9-26w.
S.D. for csg. at 350 ft.

Caddo County

Denver Prod. & Ref. Co.'s No. 1 Sah-Can, C SE SE Sec. 33-10-10w
T.D. 5,550 ft.; waiting for csg.

H. W. Lee et al's No. 1 Horton, NE cor. Sec. 9-6-13w.
S.D. at 5,001 ft.

F. A. Turner et al's No. 1 Sapia, NE NE SW Sec. 1-5-11w.
Drlg. 3,330 ft.

Cleveland County

Ada Lee Mayes, Inc.'s No. 1 Parsons, SW SW SE Sec. 10-9-1.
S.D. at 2,500 ft.

Hall-Briscoe, Inc.'s No. 1 Fant, SW SW NE Sec. 27-10-2w.
S.D. at 7,511 ft.

Coal County

Carter Oil Co. et al's No. 1 Thompson, C SW NE NW Sec. 34-2-9.
S.D. at 6,710 ft. for orders.

Shell Pet. Corp. No. 2 Hill, SE SE NW sec. 20-3-10.
Cellar and pits.

Southern Oil Co.'s No. 1 Fish, SW SW SW Sec 6-1s-8.
Viola 650 ft.; drlg. 686 ft.

Comanche County

John Nicholas' No. 1 Householder, NE NE SW Sec. 8-2-10w.
S.D. 790 ft.

Geo. Pace et al's No. 1 Spencer, SW cor SE Sec. 21-3-10w.
Drlg. 3,660 ft.

Garfield County

Earl McBride et al No. 1 Gage estate, SE NW Sec. 27-22-3w.
S.D. at 1,090 ft.

Herndon Drlg. Co. et al's No. 1 Whitaker, SE cor. Sec. 27-24-3w.
Drlg. 4,959 ft.

Garvin County

Chas. E. Carter et al No. 1 Wood, NW SW SE sec. 5-4-3.
Old T.D. 2,405 ft.; to deepen.

Mid-Continent Pet. Corp. No. 1 Butler, SW NW SW Sec. 7-3-1.
Drlg. 3,380 ft.

Orbit Oil Co. No. 1-A Federal Land Bank, SE SW SW Sec. 10-4-3.
Shut down at 3,006 ft.

Grant County

Shell Pet. Corp.'s No. 1 Foster, NW SE Sec. 28-27-2w
S.D. at 6,174 ft.

Southern Oil Co. et al's No. 1 Allen, SW SE Sec. 26-26-4w.
Drill pipe stuck at 5,208 ft.; S.D.

Hughes County

Brady Oil Co. No. 1 Culver, NE SE NW Sec. 28-7-9.
Location.

W. P. Carravan No. 1 Meadors, SE NE SE sec. 5-8-12.
Location.

Schumacher et al No. 1 Schumacher, NE NW NE Sec. 23-5-10.
Drlg. 735 ft.

Sivalls et al's No. 1 Montgomery, NW SW NW Sec. 7-9-9.
T.D. 2,040 ft.; S.D.

Kay County

Ben Head et al No. 1 Bealveal, SW cor. Sec. 8-25-1w.
Rigging up rotary at 50 ft.

Helmerich & Payne's No. 1 Roth, SW SW SW Sec. 8-28-2w.
Drlg. 4,557 ft.

A. D. Morton's No. 1 Warren, SE SE NW Sec. 19-29-4.
Mississippi lime 3,169 ft.; S.D. at 3,175 ft.

Kiowa County

Beeler & Klein No. 1 Van Kirk, NE SW Sec. 35-7-15w.
S.D. at 607 ft.

Burns & Moore's No. 1 Webster, C NE NE sec. 2-6-17w.
S.D. at 33 ft.

Rajah Oil Co.'s No. 3 Stone, C SE NE Sec. 34-7-17w.
Salt water 1,480-1,547 ft., T.D.; plugged back to 900 ft.; acidized; pumped 13 bbls. in 8 hrs.; S.D. for pumping equipment.

Lincoln County

Fred McDuff's No. 1 Jacob, NE NE SE Sec. 10-15-5.
Rig.

Stanolind O. & G. Co. and Amerada Pet. Corp. No. 1 Crawford, NE NE SE Sec. 35-15-2.
Sylvan 4,930 ft.; drlg. 5,000 ft.

Texas Co.'s No. 1 Andrew, NW NE SE sec. 28-14-5.
Drlg. 680 ft.

Texas Co.'s No. 1 Vanderpool, NW SW SE Sec. 11-16-3.
Viola 4,805 ft.; T.D. 4,869 ft.; drlg. plug.

Logan County

Springrose Drlg. Co. No. 1 Wright, SW SW NW Sec. 32-15-1.
S.D. at 1,660 ft. for repairs.

Stanolind O. & G. Co., Amerada Pet Corp. and Eason O. & R. Co.'s No. 1 Gragg, SW SW NE Sec. 20-18-4w.
Drlg. 3,700 ft.

McClain County

Arab Pet. Corp. No. 1 Autry, NW cor. Sec. 16-7-3w.
Drlg. 2,449 ft.

McIntosh County

Indian Ty. Ill. Oil Co.'s No. 1 Tancred, 1,050 ft. S and 390 ft. E of C. Sec. 9-9-14.
Drlg. 1,860 ft.

Murray County

Hornsby & Jones' No. 1 Sadler, NE NE NW sec. 20-1-2.
Drlg. 1,150 ft.

Okfuskee County

W. J. Sherry et al's No. 1 Washington, SW SW NE Sec. 21-13-7.
Coring 4,349 ft.

Sunray Oil Co.'s No. 1 Culla, NE SW NE Sec. 13-12-8.
Hunton 3,996 ft.; new T.D. 4,005 ft.; est. 15 bbls. oil and 35 bbls. water in 24 hrs.; acidized with 2,000 gals.

Oklahoma County

Mid-Continent Pet. Corp. No. 1 Dahl, NE NE NW Sec. 8-13-3w.
Drlg. 4,360 ft.

Sinclair Prairie Oil Co. et al No. 1 Heavey, NE NE NW Sec. 19-13-3w.
Set 15-in. csg. at 588 ft.; waiting.

Sinclair Prairie O. & G. Co.'s No. 1 Corbett, NE NW NE Sec. 17-13-3w.
Wilcox sand 6,645-6,706 ft.; plugged back to 5,390 ft. with 150 sacks cmt.

Pittsburg County

Vaughn Production Co. et al's No. 1 Chunn, 990 ft. N and 614 ft. W of C Sec. 29-4-14.
S.D. 1,170 ft.

Pontotoc County

W. A. Delaney et al No. 1 Hillsdale, SE SE NE sec. 35-4-6.
Location.

Gypsy Oil Co.'s No. 1 Emry, SW SW NE Sec. 15-2-6.
Drlg. 4,855 ft.

H. W. Marcum No. 1 Magnuson, SW SE SE sec. 23-2-7.
Old T.D. 1,930 ft.; to deepen.

Pioneer O. & G. Co. No. 1 Bayne, SE SW SW Sec. 16-5-6.
(Old well deepening); T.D. 3,016 ft.; P.B. to 2,006 ft.

Southern Oil Co.'s No. 1 Perry SW SW NW Sec. 11-4-6.
Sylvan 2,735 ft.; shut down at 2,741 ft.

Pottawatomie County

Ross Oil Co. et al's No. 1 Sparkman, SE NE Sec. 12-8n-4e
C.O. to 3,915 ft.; swbd. 126 bbls. in 9 hrs.

Roger Mills County

Anderson & Kerr et al No. 1 Teeter, C SE SE Sec. 2-17-25w.
Drlg. 4,800 ft.

Seminole County

Deep Rock Oil Co.'s No. 1 Robert, SW NW NW Sec. 32-9-8.
Wilcox 4,569 ft.; cored water sand 4,-569-90 ft.; plugged back to 1,915 ft.

Sinclair Prairie Oil Co. et al No. 1 Harrison, NE NE NW Sec. 17-8-8.
Location.

Felmlee & Nichaelson No. 1 Belford, SE NW NE sec. 15-9-8.
Set 10-in. csg. at 765 ft.; waiting.

Texas County

Cabot Carbon Co. No. 1 Mathews, C SW Sec. 8-3-15 (Cimarron Meridian).
T.D. 2,760 ft.; 4,300,000 ft. gas; comp.

Washita County

L. P. McWhirter's No. 1 fee, SW cor. Sec. 34-8n-19w.
Drlg. 1,347 ft.

SOUTHERN OKLAHOMA

Atoka County

R. H. Pierce et al's No. 1 Aetna Life Ins. Co., NW SW NE Sec. 10-1n-13e.
Drlg. 3,228 ft.

Vierson et al's No. 1 Williams, NE SW NW Sec. 34-2s-10.
Drlg. 3,210 ft.

Bryan County

H. B. Smith et al's No. 1 Henry, C NW NE Sec. 10-8s-7e.
Rig.

Carter County

Carter Oil Co.'s No. 1 Carter-Williams, SW NE SW Sec. 27-2s-2w.
T.D. 8,088 ft., flowed 10,000 bbls. of oil in 24 hrs.; pipe stuck.

J. H. Hudson et al No. 1 Cathey, SE NE NE Sec. 6-5s-1w.
Drlg. 2,160 ft.

E. M. Hutchins No. 1 Moore, NE SE NW Sec. 30-4s-1w.
Location.

Louis Sikes' No. 1 Byrd, SW SE SW Sec. 4-2s-2w.
T.D. 1,727 ft.; estimated 40 bbls. oil.

Cotton County

H. N. Haustic No. 1-A Weaver, C NW NE Sec. 27-4s-13w.
Drlg. 2,280 ft.

Jackson County

Associated Oil Co.'s No. 1 Harrell, NE NE SE Sec. 13-1s-21w.
S.D. 1,360 ft.

Universal Oil Co. No. 1 R. W. Briscoe, NW SW NE sec. 36-1s-20w.
Building rig.

Jefferson County

L. C. Heydrick No. 1 O. W. Seay, SE NW NW Sec. 31-6s-5w.
Drlg. 880 ft.

Geo. Pace No. 1 Gardner, SW cor. Sec. 23-5s-5w.
S.D. at 66 ft.

Sinclair Prairie Oil Co. No. 1 M. H. Barrett, NW cor. sec. 31-5s-6w.
Location.

Twin State Oil Co. No. 1 Bassett, NW SW SW Sec. 16-5s-7w.
S.D. at 3,155 ft. for fuel.

Johnston County

Equitable O. & G. Co.'s No. 1 Bellsey, NE SW Sec. 12-2s-4e.
Drlg. 1,505 ft.

Moore & Wirick's No. 1 Westheimer & Daube, SE NW NE Sec. 19-3s-4e.
Drlg. 1,620 ft.

Love County

Amerada Pet. Corp.'s No. 1-A Westheimer & Daube, SW SE SW Sec. 27-6s-2e.
Drlg. 3,810 ft.

Sinclair Prairie Oil Co.'s No. 1 Stockton, SE SE SW Sec. 26-6s-2w.
Will acidize to free drill pipe stuck at 6,832 ft.

Marshall County

Norman Smith's No. 1 Chestnut, NE cor. Sec. 23-5s-5e.
S.D. 275 ft.

W. T. Singley et al No. 1 Halford, SW SE SW SW Sec. 22-7s-4.
Drlg. 180 ft.

W. T. Singley No. 1 Vickers, NW SW NW Sec. 22-7s-4.
Drlg. 110 ft.

Pushmataha County

McCraw et al No. 1 Tidwell, C NW SE sec. 17-3n-22.
Drlg. 621 ft.

C. W. Whitehead et al's No. 1 Misser, SE SW SW Sec. 28-3n-18e
Running 7-in. csg. at 3,460 ft.

Stephens County

Franklin & Duncan's No. 1 Woolsey, NW NW SE Sec. 10-2s-6w (old well deepening).
T.D. 1,050 ft.; shut down.

Nash et al No. 1 Saddler, SW cor. NW NW SE Sec. 30-2n-4w.
T.D. 180 ft.; waiting for csg.

Shasta Oil Co.'s No. 1 Fuqua, NE NW NW Sec. 13-1s-7w.
T.D. 3,522 ft.; dry and abd.

M. T. Summings No. 1-A Aldridge, NW NE SE Sec. 15-1s-4w.
Sand 380-415 ft.; est. 10 bbls. oil and 250,000 ft. gas; shut down; no gauge.

Tillman County

Gypsy Oil Co.'s No. 1 Schenck, SE NW SE Sec. 31-1s-18w.
Drlg. 2,792 ft.

R. O. Ray No. 1 Tucker, SW NW SW Sec. 17-1s-19w.
Drlg. 2,440 ft.

Chas. Walker No. 1 D. M. Gale, NE NE NW sec. 16-1s-19w.
Location.

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GULF COAST WILDCATS

Week Ending December 21

Raccoon Bend—Austin County

Humble Oil & Ref. Co. No. 2-B-X Machemehl, 325 ft. NW of longest SE line, 2,171 ft. NE of SW line, Wm. Smeathers Survey.
Drlg. shale 3,853 ft.

Humble O. & R. Co. No. 8-X Grawunder, 2,000 ft. SW of N cor. and 300 ft. SE of NW line of lease, Wm. C. White Sur.
Drlg. shale 3,605 ft.; 10¾-in. csg. at T.D. 4,165 ft.; preparing to core.

Humble O. & R. Co. No. 9 Hellmuth, 3,621 ft. southeasterly along NE line from N cor., thence 150 ft. southwesterly at R/A.
T.D. 4,140 ft.; top sand at 4,086 ft.; 7-in. csg. at 4,097 ft.; flowing into tanks but no gauge.

**Humble O. & R. Co.'s No. 3 H. F. Granen 683 ft. NE of No. 1, 150 ft. SE of NW¼ of 63.8-ac. tract, Smeathers Sur.
Location.**

Hastings—Brazoria County

Humble O. & R. Co. No. 2 Nelson, 330 ft. W of E line of 40-ac. lease, H.T.&B. Survey, section 36.
10¾-in. csg. at 1,859 ft.; T.D. 1,875 ft.; W.O.C.

**Humble O. & R. Co.'s No. 1 J. F. Bridges, center of N 10 acres of 20-ac. lease, A.C.H.&B. Sur. No. 2.
Location.**

**Humble O. & R. Co.'s No. 2 J. F. Bridges, center of S 10 acres of 20-ac. lease, A.C.H.&B. Sur. No. 2.
Location.**

Stanolind O. & G. Co. No. 1 Cannon, 330 ft. N, 330 ft. E of SW cor. of 40-ac. tract, H.T.&B. Sur. No. 36.
Bldg. derrick.

Stanolind O. & G. Co. No. 1 F. M. Berger, 240 ft. S, 330 ft. E of NW cor. of 1,583-ac. tract, H.T.&B. Sur. No. 37.
Drlg. shale 5,720 ft.

Stanolind O. & G. Co. No. 3 Shaw, 240 ft. N, 330 ft. W of SE cor. of 120-ac. tract, H.T.&B. Sur. No. 36.
Coring sand 6,002 ft.

Stanolind O. & G. Co. No. 4 Surface, 320 ft. S, 990 ft. E of most westerly NW cor. of 75.9-ac. tract, A.C.H.&B. Sur. No. 3.
T.D. 6,080 ft.; reaming to set 7-in. csg.

Stanolind O. & G. Co. No. 6 Sneed, 426 ft. at R/A to most southerly N line and 361 ft. R/A to most westerly E line of 225-ac. lease, A.C.H.&B. Sur. No. 2.
Drlg. shale 5,331 ft.

Stanolind O. & G. Co.'s No 4 Drake, 330 ft. S, 330 ft. E of most westerly NW cor. of Drake 120-acre tract, H.T.&B. Sur. No. 36.
T.D. 5,380 ft.; 7-in. csg. 5,660 ft.

Stanolind O. & G. Co.'s No. 3 Pennock, 1,320 ft. S, 330 ft. E of NW cor. of 40-acre tract, H.T.&B. Sur. No 36.
T.D. 5,776 ft.; 7-in. csg. at 5,524 ft.; I.P. 469 bbls. in 20 hrs., ¼-in. choke; T.P. 200 lbs.; C.P. 600 lbs.

Stanolind O. & G. Co.'s No. 2 Drake, 330 ft. N, 1,650 ft. W from SE cor. of 120-ac. lease, H.T.&B. Sur. No. 36.
Spudding.

Manvel—Brazoria County

Jay Simmons' No. 1 Wilson, center of Lot 25, H.T.&B. Sur. No. 23.
Location.

**Sinclair Prairie Oil Co.'s No. 1 Michaelson, 330 ft. E of W line and midway of N and S lines, Lot 19, H.T.&B. Sur. No. 24.
Location.**

J. W. Sorrells' No. 1 Swift, Blk. 21, Abst. 318, H.N. Little Sur.
Derrick.

Texas Co. No. 2 J. L. Lemmer, S 48 degrees, E 990 ft. and N 42 degrees, E 330 ft. from W corner of 150-ac. lease, T. Sproggins Survey.
Location.

Texas Co. No. 13-A Belcher, S 48 deg., E 1,131 ft. and S 42 deg. W, 330 ft. from the N cor. of lease, H. N. Little Sur.
Drlg. shale and lime 3,264 ft.

Texas Co. No. 18-B Belcher, 1,583 ft. N, 42 deg. E and 956 ft. N, 48 deg. W from S cor. of H. N. Little Sur.
T.D. 1,150 ft.; 10-in. csg. 1,146 ft.; W.O.C.

Texas Co. No. 20 Houston Oil Field Assn., 330 ft. E and 247 ft. S of NW cor. of Lot 21-A, A.C.H.&B. Sur. No. 91.
Location.

Texas Co's No. 19 Houston Oil Field Assn., 330 ft. N, 76 ft. from SW cor. of Lot No. 31, A.C.H.&B. Sur. No. 91.
T.D. 4,253 ft.; P.B. 4,142 ft.; 7-in. csg. 4,198 ft.; tested salt water, P.B. to 2,050 ft. and sidetracked at 2,102 ft.; drlg. shale and lime 3,271 ft.

Texas Co.'s No. 2 John Groce, 857 ft. S. 200 ft. E of NW cor. of Chas. O'Donnell Sur.
T.D. 5,150 ft.; 7-in. csg. 5,129 ft.; I.P. 342 bbls. per day, ¼-in. choke; T.P. 400 lbs.; C.P. 400 lbs.

Texas Co.'s No. 1 Doonan, 990 ft. N, 42 deg. E and 330 ft. S, 48 deg. E from W cor. of Lot 17, T. Sproggins Sur.
Drlg. shale and lime 6,474 ft.

Texas Co.'s No. 4 Rash, 48 deg. E, 1,650 ft. S and 42 deg. W, 330 ft. N of NE cor. of lease, T. Sproggins Sur.
Plugged back to 4,198 ft. from 4,300 ft.; 7-in. csg. 4,198 ft.; T.D. 4,300 ft.; P.B. 4,142 ft.; rigged up to pump; est. good for 50 bbls. per day.

**Texas Co.'s No. 2 Dawson, 247 ft. S, 341 ft. W of NE cor. of Lot 58, H.T.&B. Sur. No. 23.
Location.**

Pledger—Brazoria County

Humble O. & R. Co. No. 2 McFarland, 725 ft. SN line of survey, 1,295 ft. WE line, Lot 5, on line between Lots 5 and 6, of W. C. Carson Sur.
Location.

Humble O. & R. Co.'s No. 2 Smith, 2,050 ft. NE of SW line, 1,310 ft. NW of SE line, 2,200 ft. SE of NW line, Troy & Moore Sur.
T.D. 6,720 ft.; topped sand at 6,602 ft.; 7-in. csg. at 6,227 ft.; I.P. 3,500,000 ft. of gas per day, ¼-in. choke; T.P. 2,235 lbs.

West Columbia—Brazoria County

Varner Oil Co.'s No. 1 Hogg, 800 ft. from most easterly W line and 2,600 ft. from N line of 400-ac tract, M. Varner Sur.
Drlg. 1,010 ft.; S.D.

Port Lavaca—Calhoun County

Crown Central Oil Co.'s No. 1 Wilson, 600 ft. NW line, in center of tract, A. Esparza Sur.
T.D. 6,284 ft. (corrected); set screen; to complete.

Anahuac—Chambers County

Domestic Exploration Co.'s No. 1 Marshall, 466 ft. out of NE cor. of A. W. Marshall 54.6 acre tract, H.&T.C. Sur., Sec. 55.
Abd. 7,206 ft.

Gulf Prod. Co. No. 2 Knowles, 200 ft. EW line, 431 ft. NS line of Sec. No. 48.
Drlg. shale 4,547 ft.

Humble O. & R. Co. No. 3 Engels, 466 ft. S of N line, 466 ft. E of W line of H.& T.C. Survey No. 50.
Location.

Humble O. & R. Co. No. 7 Engels, 466 ft. N of S line, 1,009 ft. E of No. 6, H.&T.C. Survey, section 50.
Location.

Humble O. & R. Co. No. 9 Broussard, 466 ft. W of E line, 1,337 ft. S of N line of H.&T.C. Survey No. 63.
Rig up.

Humble Oil & Refg. Co. No. 1 H. A. Grippon, 466 ft. E of W line, 466 ft. S of N line of H.&T.C. Survey, section 51.
Location.

Humble O. & R. Co. No. 2 Max H. Engels, 826 ft. S of No. 2, 493 ft. N of S line, sec. 50, H.&T.C. Sur.
T.D. 7,082 ft.; top sand 6,850 ft.; 7-in. csg. at 7,041 ft.; W.O.C.

Humble O. & R. Co.'s No. 8 Clark, 466 ft. WE line, 2,212 ft. NS line of H.T.&C., Sec. 57.
Rig up.

Humble O. & R. Co. No. 1 W. C. Tyrell, 466 ft. WE line, 466 ft. SN line of H.&T. C. Sur., Sec. 52.
10¾-in. csg. at 1,544 ft.; drlg. shale 4,284 ft.

Humble O. & R. Co. No. 2 Tyrell, 1,922 ft. SNL, 1,317 ft. WE line of H.&T.C. Sur., sec. 52.
Location.

Humble O. & R. Co.'s No. 10 Middleton, 466 ft. from N and E lines of A. Milton Sur. No. 58.
T.D. 7,082 ft.; 7-in. csg. 7,041 ft.; W.O.C.

Humble O. & R. Co.'s No. 6 Broussard, 3,058.4 ft. from W line, 466 ft. from N line, H.&T.C. Sec. 62.
T.D. 7,085 ft.; I.P. 28 bbls. per hour, ¼-in. choke; T.P. 1,150 lbs.; C.P. 1,200 lbs.

Humble O. & R. Co. No. 1 H. E. Marshall, 466 ft. N of S line, 466 ft. E of W line of 160-ac. lease, H.&T.C. Sur., sec. 50.
Derrick.

Humble O. & R. Co. No. 13 Middleton, 873 ft. E of No. 48, 466 ft. N of S line of H.&T.C. Survey, sec. 58.
10¾-in. csg. at 1,535 ft.; T.D. 1,545 ft.; W.O.C.

Humble O. & R. Co., No. 6 White, 825 ft. N of No. 5, 466 ft. E of W line of lease, J. McGahey Survey.
Location.

Humble O. & R. Co. No. 3 Zappe, 859 ft. N of No. 1, 466 ft. W of E line of H.&T.C. Sur., sec. 51.
Location.

Humble O. & R. Co. No. 5 White, 466 ft. EW line, 825 ft. N of No. 4 White, J. McGahey Sur.
Coring shale at 7,070 ft.

**Humble O. & R. Co.'s No. 3-B Broussard, 869 ft. E from No. 2-B, 466 ft. S of N line, Sec. 59, H.&T.C. Sur.
Location.**

Humble O. & R. Co.'s No. 6 Clark, 1,339 ft. N of S line, 466 ft. E of W line of Sec. 57, H.&T.C. Sur.
Drlg. shale and lime 6,250 ft.

Humble O. & R. Co.'s No. 2 Broussard 2,322 ft. E of W line, 2,332 ft. N of S line of Sec. 62, H.&T.C. Sur.
Location.

Sun Oil Co. No. 5 White, 200 ft. WE line, 467 ft. NS line of lease and survey, James McGahey Sur.
Coring shale 7,070 ft.

Sun Oil Co. No. 6 White, 933 ft. W of No. 4, 517 ft. SN line of lease, James McGahey Sur.
Location.

Barbers Hill—Chambers County

Sinclair Prairie No. 19 Wilburn, 150 ft. W of No. 18, 50 ft. SN line of lease, Henry Griffith Sur.
T.D. 1,044 ft.; W.O.C.

Sun Oil Co.'s No. 18 Wilburn, 80 ft. N 78 ft. E of SW cor. of tract, Wm. Hodges Sur.
Drlg. shale and lime 3,021 ft.

Stanolind Oil & Gas Co.'s No. 11-B Wilburn, 50 ft. E of W line, 50 ft. S of N line of tract, Wm. Hodge Sur.
Drlg. salt 1,987 ft.

Stanolind O. & G. Co.'s No. 29 Chambers, 224 ft. E of No. 21 W. Bloodgood Sur.
Derrick.

Stanolind O. & G. Co.'s No. 31 Chambers, 30 ft. S, 50 ft. W of NW cor. of Sur. A lease.
T.D. 5,543 ft.; sidetracing at 4,818 ft.

Texas Gulf Prod. Co. No. 7 Wilburn, 70 ft. W of E line, Wm. Hodge Sur.
T.D. 1,434 ft.; W.O.C.

Big Creek—Fort Bend

Gulf Prod. Co.'s No. 66 Davis, 2,760 ft. NE along SE line of lease from W corner of Texas Co.'s 300-ac. lease, 1,285 ft. NW at R/A, M. Young Sur.
Drlg. shale 4,592 ft.

Marten Drlg. Co. No. 1 W. C. Moore, 25 ft. S of NW line and 111 ft. SW along NW line from N cor. of Atlantic 25-ac. Moore lease, B. Wickerson Sur.
Rig up.

Blue Ridge—Fort Bend County

Gulf Prod. Co. No. 18 "B" Bassett-Blackely, 350 ft. E and S of NW cor. of Lot 5, Blk. "G," E. Drew Sur.
Drlg. sand 3,699 ft.

Texas-State Oil Co. No. 2 Bassett-Blackely, 75 ft. NS line, 350 ft. EW line, Lot 6, Blk. "G," E. Drew Sur.
Rig up.

Boling—Fort Bend County

Texas Co. No. 15-A Taylor, 683 ft. SE of No. 11-A, 683 ft. NW of No. 12-A, S. F. Austin Sur.
Drlg. sand, shale and lime 3,366 ft.

Orchard—Fort Bend County

Gulf Refg. Co. No. 45 Moore, 1,050 ft. E along S line from SW corner of Survey, 1,149 ft. N at R/A, German Immigration Sur. No. 8.
Rig up.

Gulf Prod. Co.'s No. 2-A Moore, Burnap Sur.
Drlg. lime rock 1,350 ft.

Gulf Prod. Co. No. 44 Moore, 500 ft. NW of No. 42, Leo Burknapp Sur.
Drlg. sandy shale and lime 4,107 ft.

Gulf Prod. Co. No. 43 Moore, 350 ft. E along S line of SW cor. of E.M.&G. Co. Sur. and 740 ft. N at R/A to said line of lease, 350 ft. E of No. 3 Moore.
T.D. 7,282 ft.; P.B. 6,698 ft.; I.P. 16 bbls. distillate in 24 hrs.; T.P. 2,600 lbs.

Thompson—Fort Bend County

Gulf Prod. Co. No. 14-A Gubbles, 970 ft. S of N line, 1,345 ft. W of E line, 123-ac. tract, Blk. 6, Tract No. 3, S. Kennedy Survey.
T.D. 5,385 ft.; I.P. 517 bbls. per day, ¾-in. choke; T.P. 500 lbs.; C.P. 665 lbs.

High Island—Galveston County

Stanolind O. & G. Co. No. 1-C Marrs-McLean, 450 ft. S of N line of Lot 5, M. Dunman Sur.
Drlg. shale and lime 4,154 ft.

Stanolind O. & G. Co. No. 5 B.&N.O., 138 ft. S, 150 ft. E of NE cor. of Fitzsimmons Sur.
Derrick.

Stanolind O. & G. Co. No. 50 Cade, 350 ft. WE line, 950 ft. NS line of 460-ac. tract, N. Fitzsimmons Sur.
Drlg. shale and lime 4,736 ft.

Stanolind O. & G. Co. No. 51 Cade, 690 ft. SN line, 620 ft. WE line of 460-ac. tract, Fitzsimmons Sur.
Drlg. shale 4,023 ft.

Dickinson—Galveston County

Humble O. & R. Co. No. 1-B San Leon, 381 ft. SE of NW line and 300 ft. SW of NE line of 8½ of Blk. 102, A. E. Edwards Sur.
Drlg. shale 7,771 ft.

Humble O. & R. Co. No. 2 Anderson, 352 ft. WE line, 777 ft. EW line and 338 ft. NS line, Lot 2, Blk. 15, J. Sellers Sur.
Drlg. shale 7,250 ft.

Humble O. & R. Co. No. 2-B Bayou Dev. Co., 600 ft. EW line of lease, 1,866 ft. due S of No. 1-B, John Sellers Sur.
Derrick.

Humble O. & R. Co. No. 3-B Stewart, 3,954 ft. S along E line from NE cor. and 577.2 ft. W at right angles, J. Sellers Sur.
T.D. 8,618 ft.; P.B. to 8,504 ft.

Humble O. & R. Co. No. 4-B Stewart, 584 ft. EW line, 933 ft. due S of No. 3-B, John Sellers Sur.
Location.

Humble O. & R. Co. No. 5-A Stewart, 466 ft. W of E line of Stewart "A" Lease, 5,500 ft. due S of No. 2-A Stewart, John Sellers Sur.
Rig.

Humble O. & R. Co. No. 6-A Maco Stewart, 6,087 ft. S of NE cor., 1,390 ft. W of E line and 1,390 ft. E of W line and 466 ft. N of S line of Stewart.
7-in. csg. 8,974 ft.; T.D. 9,142 ft.; preparing to test.

Pure Oil Co. No. 2 J. W. Shelor, 779 ft. N, 182 ft. W of N. I. Shelar, B.B.B. &C. Sur.
T.D. 8,481 ft.; T.D. of sidetracked hole 8,093 ft.; washing over at 4,020 ft.

Stanolind O. & G. Co. No. 2 State, 1,369 ft. E of No. 1 State.
T.D. 9,135 ft.; 7-in. csg. 9,120 ft.; P.B. to 9,093 ft.; drilled out to 9,095 ft.; preparing to perforate.

Stanolind O. & G. Co. No. 3 State, 683 ft. SE of No. 1, 218 ft. N of S bank of Dickinson Bayou Sur., Tract No. 3.
T.D. 8,132 ft.; 7-in. csg. 8,080 ft.; P.B. and drilled to 8,050 ft.; perforated from 8,039-47 ft.; swabbing.

Stanolind O. & G. Co. No. 4 State, 935 ft. S, 11 deg. S, 15 ft. E of Pure Oil Co. No. 1 Shelor tract No. 3.
Building derrick.

Stanolind O. & G. Co. No. 5 State, 1,247 ft. S, 19 deg. 53 ft. E of Humble No. 1 Townes, Tract 3.
Driving piling.

Turman Oil Co. No. 2 Piazza, 231 ft. E of E line, 730 ft. S of N line, 945 ft. E of No. 1, J. S. Sherman Sur.
Location abd.

Batson—Hardin County

John Deering et al No. 3 Cruse, 175 ft. due W and 25 ft. N of No. 2 Cruse, F. H. Green Sur.
Drlg. shale 3,010 ft.

D & L. Prod. Co. No. 1 Hooks, 100 ft. S of N line, 300 ft. E of W line 26.75-ac. tract, W. Donoho Sur.
T.D. 6,502 ft.; surveying hole; no report.

John Deering et al No. 1 J. W. Whitley, 160 ft. SN line, 240 ft. EW line of 130-ac. tract, W. Donoho Sur.
S.D. 780 ft.; rigging up heavier rig.

Shell Pet. Corp. No. 2 Jackson, 190 ft. W EL, 395 ft. N of SL of lease, W. Donoho Sur.
Drlg. shale 3,368 ft.

Texas Co. No. 2 Christian, 510 ft. S, 460 ft. E of NW cor. of Willis Donoho League.
T.D. 4,604 ft.; running 7-in. csg.; pulling screen and packer.

Pierce Junction—Harris County

Wright et al No. 1 Gulf "Jones fee," 100 ft. SN line and 25 ft. EW line of N 12 acres of 25-ac. lease, B.B.B.&C. Sur.
T.D. 4,032 ft.; top sand 4,009 ft.; running csg.

J. S. Abercrombie et al No. 7 John Ritter, 535 ft. E of W line, 156 ft. N, 17 deg. 42 ft. W at right angles, James Hamilton Sur.
Coring sand at 4,942 ft.

Humble—Harris County

Texas Co. No. 39 Koehler, 1,281 ft. S and E and 150 ft. N of SW cor. of lease, J. Stevenson Sur.
T.D. 3,128 ft.; 7-in. csg. at 3,097 ft.; fishing.

Mykawa—Harris County

Danciger O. & R. Co. No. 4 Minnetex, 300 ft. WE line, 250 ft. SN line of Lot 192, Wm. Lovett Sur.
T.D. 5,155 ft., made D.S.T. from 4,910-24 ft.; showed 3,000 ft. oil, ¼-in. choke; set screen and showed salt water; P.B. to 4,875 ft.; perforated from 4,832-50 ft.; tested; dry and S.D.

West Prod. Co. No. 6 Irwin, 370 ft. S of N line, 403 ft. W of E line of lease, W. B. Walker Survey.
Rig up.

South Houston—Harris County

Stanolind O. & G. Co. District 27, No. 1, center Lot 1, Blk. 102.
T.D. 4,622 ft.; cmtd. 9⅝-in. csg. at 4,512 ft.; drlg. plug.

Stanolind O. & G. Co. No. 1 Griffin, 250 ft. E, 150 ft. S of the NW cor. of J. T. Griffin et al, Tract 153, H.T.&B. Sur. No. 36.
Location.

Tomball—Harris County

Amerada-Stanolind No. 2 Felber, 466 ft. NW line, 466 ft. SW line of 105-ac. lease in E. Smith Sur.
Moving in rig.

Humble O. & R. Co. No. 1-B Holderrieth, 388.7 ft. W of most westerly E line of C. N. Pillot Sur.
10¾-in. csg. at 929 ft.; T.D. 952 ft.; W.O.C.

Humble O. & R. Co. No. 1 Michel, 600 ft. NS line, 689 ft. EW line, 689 ft. WE line, C. N. Pillot Sur.
T.D. 5,556 ft.; 7-in. csg. set on bottom; I.P. 2,850,000 ft. gas per day, ¼-in. choke; T.P. 2,050 lbs.; C.P. 2,050 lbs.

Humble O. & R. Co. No. 1 Tomball Townsite Unit No. 5, 180 ft. SN line and 75 ft. WE line, Blk. 97, J. House Sur.
Drlg. shale and sand 5,579 ft.

Humble O. & R. Co. No. 3 Milo, 466 ft. W of most easterly E line, 250 ft. S of most southerly N line of lease, C. N. Pillot Sur.
T.D. 5,550 ft.; topped sand at 5,510 ft.; 7-in. csg. at 5,550 ft.; I.P. 15 bbls. per hour, ¼-in. choke; T.P. 1,150 lbs.; C.P. 1,850 lbs.

Humble O. & R. Co. No. 11 Reid, 466 ft. E of W line, 466 ft. N of S line of lease, C. Goodrich Survey.
Drlg. shale and lime 4,103 ft.

Sun Oil Co. No. 3 Metzler, 600 ft. N of S line, 466 ft. E of W line of middle SW cor. of 117.5-ac. lease, C. N. Pilot Sur.
T.D. 5,672 ft.; 7-in. csg. 5,570 ft.; I.P. 78 bbls. in 8 hrs., ¼-in. choke; C.P. 2,000 lbs.; T.P. 1,800 lbs.

Sun Oil Co. No. 4 Metzler, 466 ft. E of most westerly W line and 250 ft. N of most northerly S line of lease, C. N. Pillot Sur.
Rig up.

Texas Co. No. 2 Hillegeist, 425 ft. E of W line of 199-ac. tract, J. House Sur.
Drlg. shale 4,947 ft.

Big Hill—Jefferson County

Stanolind O. & G. Co. No. 2-A Pipkin & Davis, 1,430 ft. SW of NE cor. of Pipkin & Davis lease along SE line of same and 50 ft. SE at right angles, William McFaddin Sur.
T.D. 6,695 ft.; washing to bottom to rerun screen and test.

Fannett—Jefferson County

Blue Eagle Oil Co. No. 2 Junker, 225 ft.

due S from No. 1 Junker, W. H. Smith Sur.
Rig up.
Blue Eagle Oil Co. No. 1 Junker, 40 ft. each way out of NW cor. of lease, W. H. Smith Sur.
T.D. 4,121 ft.; swabbing.
Gulf Prod. Co. No. 6 Junker, 920 ft. W along N line of 280-ac. tract from NE cor. and 540 ft. S at R/A, Wm. Smith Sur.
Drlg. shale 4,033 ft.

Cleveland—Liberty County

Gulf Prod. Co. No. 12-C Kirby, 1,234 ft. N, 2,332 ft. E from NE cor. of J. Eldridge Sur.
T.D. 5,655 ft.; P.B. and drlg. shale 5,-730 ft.

Esperson—Liberty County

General Crude Oil Co. No. 1 Halvaty, 467 ft. out of SE cor. of F. M. Gardner Sur.
Drlg. shale 5,735 ft.
General Crude Oil Co. No. 12 Davis, 1,200 ft. NS line and 330 ft. WE line of Kokernot Sur.
Drlg. hard sand rock 1,298 ft.
General Crude Oil Co. No. 23 Esperson, 550 ft. N along W line of survey from SE cor. of D. K. Kokernot Sur., thence 1,185 ft. E at right angles.
Drlg. sand, no show 3,947 ft.
General Crude Oil Co. No. 22 Esperson, 1,200 ft. N along W line of Survey from SE corner of Kokernot Sur, thence 330 ft. E at R/A Fisher Sur.
Location.

Hankamer—Liberty County

Cretaceous Oil Co. No. 4 Exzell, 125 ft. WE line and 132 ft. NS line of 70-ac. tract, Levi Barrow Sur.
Derrick.
Eastman-Ward No. 1 R. E. Lee, 115 ft. from N line of lease and 76 ft. W of west bank of White Bayou, Geo. Stengler Sur.
S.D. 2,707 ft.
Gulf Prod. Co. No. 1-A R. J. Weiser, 770 ft. W along S line from SE cor. of survey and 422 ft. at R/A, George Stingler Sur.
Drlg. shale 4,304 ft.

Hull—Liberty County

W. B. Flynn No. 8-B Able, 50 ft. S, 300 ft. W of NE cor. of old Humble 10-ac. tract.
S.D. 1,000 ft.
Republic Prod. Co.-Houston Oil Co. No. 158 Dolbear, 170 ft. NW of No. 90 and 350 ft. SW of No. 156, J. Devore League.
T.D. 2,343 ft.; comp. dry gas well; T.P. 500 lbs.

South Liberty—Liberty County

R. R. Lawrence No. 1 Vandeventer, 200 ft. SN line, 100 ft. EW line of 121-ac. tract, D. Winchey Sur.
3,510 ft.; no report.

Markham—Matagorda County

Powers Prod. Co. No. 4 Myers, 225 ft. N of No. 2, 255 ft. EW line of lease, Blk. No. 1, Wm. Haddin Sur.
Location.

Van Vleck—Matagorda County

Skelly Oil Co. No. 1 Sally Johnson, 487 ft. W of E line, 395 ft. SN line of 27-ac. tract, M. Cummings Sur.
T.D. 7,512 ft.; I.P. 632 bbls. per day, ¼-in. choke; C.P. 1,200 lbs.; T.P. 975 lbs.

Conroe—Montgomery County

Sun Oil Co. No. 10 Keystone Mills,
Derrick.
Sun Oil Co. No. 19 Keystone Mills,
Rig up.
Sun Oil Co. No. 28 Foster.
T.D. 5,144 ft.; testing.

Port Neches—Orange County

Texas Co. No. 11 Kuhn, 620 ft. N, 330 ft. E of SW cor. of 257.74-ac. tract, Mary E. Hall Sur.
Drlg. sand and shale at 6,033 ft.

Livingston—Polk County

Hawkeye Pet. Co. No. 3 Howard, 466 ft. out of NW cor. of 75-ac. tract, A. Viesca Sur.
Location.
Hawkeye Pet. Co. No. 1 Nelson, 330 ft. N of S line, 466 ft. E of W line of 300-ac. tract, A. Viesca Sur.
T.D. 4,262 ft., swabbed dry, pulling screen to perforate 7-in. csg.
Humble O. & R. Co. No. 16 Granbury, 1,399 ft. from NW and 466 ft. from NE lines of Block No. 11, A. Viesca Sur.
Top sand 4,152-4,207 ft.; 7-in. csg. at 4,194 ft.; W.O.C.
Humble O. & R. Co. No. 22 Granbury and Smith, 933 ft. SE of No. 16 and 466 ft. from NE line of Blk. 11, A. Viesca Sur.
Location.
Humble O. & R. Co. No. 24 Granbury and Smith, 933 ft. SE of No. 21 and 933 ft. SW of No. 1, A. Viesca Sur.
Location.
Ownby-Shell Pet. Corp. No. 6 Pratt, 660 ft. S of No. 1, 330 ft. W from road, A. Viesca Sur.
Digging pits.

Colette Creek—Victoria County

American Liberty Oil Co. No. 1 Camp, 330 ft. out of S cor. of 30-ac. lease, R. Manchola Sur.
T.D. 2,861 ft.; 7-in. csg. 2,859 ft.

Placedo—Victoria County

American Liberty No. 1 Gray, 3,960 ft. SWL, 500 ft. SEL of S.A.&M.G. Sur.
T.D. 4,765 ft.; oil and sand; 7-in. csg. at 4,750 ft.; W.O.C.
Barnsdall Oil Co. No. 2 W. R. Smith, 1,365 ft. from NE line, 328 ft. from SE line, Lot 7, A. Murray Survey.
Derrick.
Barnsdall Oil Co.-Costa Oil Co. No. 1 Wright, 330 ft. each way out of N cor. of 49.62-ac. tract, S.A.&M.G. Survey No. 5.
T.D. 4,769 ft.; 7-in. csg. 4,758 ft.; W.O.C.
Barnsdall Oil Co. No. 3 J. M. Pickering et al, 330 ft. from R.R., 612 ft. from No. 2, offset to Smith & Gulf No. 1 Boehm, S.A.&M.G. Sur. No. 5.
Rig up.
Barnsdall-Felmont Oil Co. No. 1 Pickering and Roos, 330 ft. NE, 530 ft. SE of No. 3, S.A.&M.G. Sur. No. 5.
T.D. 5,500 ft.; tested salt water on D.S.T.
Eastern Texas Prod. Co. No. 1 Krappa, 330 ft. out of S cor. of 40-ac. tract, Lot 12, Wm. Rupley Sur.
13⅜-in. csg. at 855 ft.; W.O.C.
C. F. McGrew No. 1 Hadley, center of 20-ac. lot, S.A.&M.G. Sur., Sec. 9, Blk. 49, Lots 1 and 2.
Location.
Smith & Gulf No. 2 Wright, 330 ft. each way out of W cor. of lease, S.A.&M.G. Sur. No. 5.
T.D. 4,768 ft.; 7-in. csg. at 4,756 ft.; Temp. abd.
Westgate Oil Co. No. 2 Henderson & Pickering, 700 ft. NE, 320 ft. SE of Lot 126, S.A.&M.G. Sur., Wm. Rupley Sur.
10¾-in. csg. at 786 ft.; W.O.C.
Westgate Oil Co. No. 1 Muska, 330 ft. out of N cor. of 9.54-ac. tract, Lot 78, S.A.&M.G. Sur.
T.D. 4,778 ft.; 7-in. csg. 4,758 ft.

Clay Creek—Washington County

Sun Oil Co. No. 12 Clay, 1,050 ft. NW line, 150 ft. SW line of 218-ac. tract, 300 ft. SE of No. 11, J. F. Perry Sur.
T.D. 1,354 ft.; breaking down drill pipe.

Louise—Wharton County

Pure Oil Co. No. 3 McIntyre, 2,554 ft. NE and 466 ft. NW from S cor. of survey, Sec. 25, Morris and Cummings Sur.
T.D. 5,149 ft.; 7-in. csg. at 5,123 ft.; I.P. 319 bbls. per day, ¼-in. choke; T.P. 360 lbs.; C.P. 540 lbs.
Pure Oil Co. No. 5 Kountze, 330 ft. from SE line, 466 ft. from SW line, Morris and Cummings Sur.
T.D. 5,160 ft.; 7-in. csg. at 5,124 ft.; testing.

Pickett Ridge—Wharton County

Texas Co. No. 6-A Pierce, 660 ft. N, 58 deg. E, 761 ft. S, 32 deg. E from No. 2-A, I.&G.N. Sur. No. 39.
T.D. 4,710 ft.; 7-in. at 4,703 ft.; I.P. 26 bbls. per hour, ¼-in. choke; T.P. 550 lbs.; C.P. 850 lbs.
Texas Co. No. 7-A Pierce, 1,000 ft. N, 9 deg. 18 ft. E from No. 2-A, and 1,000 ft. N, 73 deg. 18 ft. W from No. 3-A, I.&G.N. Sur.
Drlg. shale 4,648 ft.
Texas Co. No. 8-A Pierce, 9 deg. 18 ft. E, 1,000 ft. from No. 7-A, N, 32 deg. W, 150 ft. S of No. 3-A, I.&G.N. Sur. No. 39.
Derrick.

SOUTH LOUISIANA FIELDS

Anse La Butte—St. Martin Parish

Y. D. Spell No. 1 Begenaud, Sec. 117-9s-5e.
T.D. 1,253 ft. (corrected); shale; 10¾-in. csg. at 434 ft.; I.P. 40 bbls. per day pumping.

Bay St. Elaine—Terrebonne Parish

Texas Co. No. 11 Bay St. Elaine, 5,008 ft. S and 4,930 ft. E of NW corner of Section 17-22s-18e.
Location.

Black Bayou—Cameron Parish

Shell Petroleum Co.'s No. 29 Watkins, 2,900 ft. E, 650 ft. S of NW cor. of Sec. 17-12s-12w.
T.D. 4,465 ft.; top sand 4,429 ft.
Shell Petroleum Co.'s No. 30 Watkins, 3,250 ft. W, 930 ft. S of NE cor. of Sec. 18-12s-17w.
Drlg. shale 3,026 ft.
Shell Pet. Corp.'s No. 26 Watkins, 3,380 ft. W, 100 ft. S of NE cor. of Sec. 18-12s-12w.
Location.

Choneyville—Rapides Parish

Amerada Pet. Corp. No. 1 Weil, 495 ft. out of the NW cor. of Tract 2, Sec. 52-1s-2e.
Bldg. derrick.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 25 State, Sec. 17-23s-20e.
T.D. 4,743 ft.; I.P. 1,933 bbls. per day through ¼-in. choke.
Texas Co.'s No. 26 State, 172 ft. from S line, 1,796 ft. from W line, Sec. 17-23s-20e.
T.D. 3,925 ft.; P.B. 3,220 ft.

Tepetate—Acadia Parish

Continental Oil Co.'s No. 1 Kern, 1,610 ft. S, 660 ft. W of SE cor. of Sec. 29-7s-2w.
T.D. 3,318 ft.; 5¾-in. csg. at 3,310 ft.; W.O.C.
Continental Oil Co.'s No. 1 Macabee, 990 ft. N, and 660 ft. E of SW cor. of 160-ac. tract, Sec. 22-7s-2w.
Drlg. shale 3,523 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 5 Gumbie, 964 ft. NE from S cor. of section at R/A to SW line of Sec. 33-10s-2e.
Drlg. shale 5,964 ft.
Humble O. & R. Co. No. 9 Gumbie, 2,445 ft. NW of SE cor. of Sec. 30-10s-2e, 540 ft. NE at R/A.
Coring sand 5,406 ft.

Sorrento—Ascension Parish

Athens Oil Co.'s No. 3 United Land, 660 ft. W of No. 2, Sec. 15-10s-4e.
Drlg. shale 2,700 ft.

Cameron Meadows—Cameron Parish

Burton Sutton Oil Co. No. 11 School Land, 500 ft. N of S line, and 423 ft. W of Sec. 16-14s-13w.
Rig up.
Burton Sutton Oil Co.'s No. 4 School Land, Sec. 16-14s-13w.
Derrick.
Magnolia Pet. Co. No. 15 Cameron Meadows, 650 ft. S of N line of Sec. 21, 500 ft. SE of No. 9, Sec. 21-14s-13w.
T.D. 3,664 ft.; P.B. 3,625 ft. and sidetracked; coring sand 4,399 ft.; no report.

Choctaw Dome—Iberville Parish

Standard Oil Co.'s No. 8 Myrtle Grove Wilburt, 500 ft. N, 725 ft. W of SE cor. of SW¼ of Sec. 52-9s-11e.
13⅜-in. csg. 836 ft.; W.O.C.
Standard Oil Co.'s No. 6 Gay, 400 ft. N, 50 ft. W of No. 5, Sec. 52-9s-11e.
Comp. canal.

Edgerly—Calcasieu Parish

J. G. Sutton No. 16 Lillard, Sec. 28-9s-11w.
T.D. 1,520 ft., 7-in. csg. 1,461 ft.; prepare to pump.

Four Isle—Terrebonne Parish

Texas Co.'s No. 6 State, 1,933 ft. S, 2,100 ft. W of NE cor. of Sec. 23-21s-16.
Drlg. shale 7,585 ft.
Texas Co.'s No. 5 State, 885 ft. S, 2,327 ft. E of NW cor. of Sec. 24-21s-16e.
Location.

Garden Island Bay—Plaquemines Parish

Texas Co.'s No. 17 State, 1,970 ft. N, 1,648 ft. E of SW cor. of Sec. 37-23s-32e.
Drlg. sand 4,047 ft.
Texas Co.'s No. 18 State, 1,268 ft. N, 2,313 ft. E of SW cor. of Sec. 37-23s-32e.
Location.
Texas Co.'s No. 13 State, 3,391 ft. S and 1,604 ft. W of NE cor. Sec. 107-23-32.
Rig up.

Gillis—Calcasieu Parish

Fohs Oil Co. No. 9 Castle, 517 ft. S and 330 ft. E of No. 3, Sec. 13-9s-8w.
Derrick.
Fohs Oil Co. No. 1 Wassy, Sec. 14-9s-8w.
Drlg. shale 5,071 ft.
Fohs Oil Co.'s No. 1 Powers, Sec. 14-9s-8w.
T.D. 7,062 ft.; 7-in. csg. 6,995 ft.; I.P. 720 bbls. per day, ¾-in. choke.
Texas Co. No. 7 Nickerson, Sec. 12-9s-8w.
Drlg. shale and lime 5,458 ft.
Union Sulphur Co. No. 5 Mayo-Reeves, 810 ft. E and 447 ft. N of SW corner of NW¼ Sec. 19-9s-6w.
Drlg. shale 3,020 ft.
Union Sulphur Co. No. 15 State, 225 ft. S, 164 ft. W of NE corner of NW corner of NW¼ of Sec. 12-9s-8w.
Location.
Union Sulphur Co. No. 16 State, 1,100 ft. N, 1,443 ft. W of SE corner of NW¼ of Sec. 11-9s-8w.
Location.
Union Sulphur Co. No. 17 State, 241 ft. N and 659 ft. E of SE corner of NW¼ of NW¼ of Sec. 12-9s-8w.
Location.
Union Sulphur Co.'s No. 4 Castle, 330 ft. N, 1,850 ft. W of SE cor. of NE¼ of Sec. 14-9s-8w.
T.D. 7,200 ft.; making survey.
Union Sulphur's No. 4 Powell, 685 ft. S, 1,621 ft. E of NW cor. of Sec. 13-9s-8w.
Cmtd. csg. in oil sand; T.D. 6,724 ft.; I.P. 600 bbls. per day through 16/64-in. choke.
Union Sulphur Co.'s No. 7 State, 1,316 ft. N, 199 ft. E of SW cor. Sec. 12-9s-8w.
Location.
Union Sulphur Co.'s No. 13 State, 1,484 ft. E, 2,088 ft. N of SW cor. of Sec. 12-9s-8w.
Location.
Union Sulphur Co. No. 14 State, 1,462 ft. N, 69 ft. W of SE cor. NE¼ of Sec. 11-9s-8w.
Drlg. shale 6,675 ft.

Gueydan—Vermilion Parish

Pure Oil Co.'s No. 6 Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w.
T.D. 9,545 ft.; milling on csg. 5,189 ft.

Hackberry—Cameron Parish

Browning Oil Co.'s No. 1 Ellender, Sec. 27-12s-10w.
T.D. 3,356 ft.; 6⅝-in. csg. at 3,340 ft.; failed to flow, cutting and pulling csg.
Stanolind O. & G. Co.'s No. 9 Gulf Land, 1,650 ft. S, 750 ft. W from NE cor. SW¼ of Sec. 14-12s-10w.
T.D. 6,016 ft.; I.P. 720 bbls. per day, ¼-in. choke, T. P. 510 lbs.; C.P. 600 lbs.
Texas Co.'s No. 11 State, 961 ft. E, 153 ft. N of NE cor. of Sec. 13-12s-9w (workover).
T.D. 6,602 ft.; 5-in. csg. 6,523 ft.; set screen to test.
Texas Co.'s No. 18 State, N 13 deg. 30 ft. W, 4,000 ft. from No. 13, Sec. 44-12s-9w.
T.D. 7,359 ft.; fishing.

Iowa—Jefferson Davis Parish

Shell Pet. Corp.'s No. 19 Heyd, 1,200 ft. S, 990 ft. W of NE cor. of NW¼ of Sec. 13-9s-7w.
T.D. 5,378 ft.; tested 70 lbs. pressure on drill stem test from 5,253 ft.

New Iberia—Iberia Parish

Harrison & Abercrombie's No. 4 Schwing, Sec. 56-12s-7e.
Top salt 7,194 ft.; T.D. 7,300 ft.; P.B. to 6,640 ft.; milled out at 6,590 ft. to test sand at 6,796-6,803 ft.
Kites Oil Co.'s No. 1 Sealy, Sec. 56-12s-7e.
S.D. 3,300 ft.

Jennings—Acadia Parish

Yount Lee Oil Co.'s No. 15 Houssiere-Latriele.
T.D. 7,306 ft.; 7-in. csg. 7,268 ft.; testing.

Lafitte—Jefferson Parish

Texas Co. No. 3 Rigolettes, sec. 30-17s-24e.
Location.
Texas Co. No. 3 Lafitte, Sec. 19-17s-24e.
Drlg. shale 6,935 ft.
Texas Co.'s No. 2 Rigolet Co-operative Co., 467 ft. S, 1,194 ft. W of NE cor. Sec. 30-19s-24e.
Drlg. shale 7,110 ft.

Lake Hermitage—Plaquemines Parish

Gulf Ref. Co. No. 4 LaFourche Basin Levee Board, 500 ft. N of No. 3, sec. 15-18s-25e.
Location.

Lake Barre—Terrebonne Parish

Texas Co.'s No. 24 State, Sec. 40-21s-19e.
T.D. 3,758 ft.; I.P. 1,320 bbls. per day through ¾-in. choke.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 14 State, Sec. 8-22s-18e.
T.D. 7,246 ft.; drill stem stuck.

Leesville—LaFourche Parish

Gulf Ref. Co. No. 7 Allen Lands, 600 ft. N of S line and 200 ft. W of No. 1, sec. 26-21s-22e.
Rig up.
Texas Co.'s No. 40 Leesville, Sec. 27-21s-22e.
Drlg. cap rock 4,142 ft.
Texas Co.'s No. 39 Leesville, 126 ft. S, 1,481 ft. W of NE cor. SE¼ of Sec. 27-21s-22e.
P.B. to 1,250 ft. and sidetracked; drlg. lime 3,730 ft.
Texas Co.'s No. 25 Leesville.
Derrick.
Texas Co.'s No. 23 Leesville, 975 ft. S, 1,-975 ft. W of NW cor. of SW¼ Sec. 26-21-22.
Derrick.

Roanoke—Jefferson Davis Parish

Glassell and Gulf Prod. Co. No. 1 T. A. Anding, 217 ft. N and 375 ft. W of SE cor. of sec. 2-9s-4w.
Derrick.
Glassel et al's No. 1 La. Irrigation Mill Co., 695.5 ft. E and 475 ft. N of SW cor Sec. 1-9s-4w.
Location.
Humble O. & R. Co.'s No. 3 Kratzer, 1,333 ft. NS line, 440 ft. WE line of M. Kratzer 120-ac. tract, Sec. 11-9s-4w.
T.D. 8,587 ft.; P.B. to 6,800 ft.; fishing at 7,342 ft.
Shell Pet. Corp. No. 2 Carter, 330 ft. E and 187 ft. N of SW cor. of sec. 1-9s-4w.
Rig up.
Humble O. & R. Co. No. 5 Kratzer, 660 ft. EW line, 1,000 ft. SN line of 120-ac. lease, Sec. 11-9s-4w.
Rig up.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 1 Cormier, 1,350 ft. W, 437 ft. N of SE cor. of tract.
Rig up.

St. Martinville—St. Martin Parish

Coastal Oil Co. No. 1 A. O. Ladeaux, in center of tract and 236 ft. E of W line of sec. 5n-11s-6e.
20-in. csg. 530 ft.
Coastal Plains Oil Corp. No. 1 A. L. Domengeaux, 330 ft. from W line, 120.5 ft. from N and S lines of 50-ac. Arpent tract, Sec. 57-11s-6e.
13⅜-in. csg. 1,321 ft.; W.O.C.
Tide Water Oil Co. No. 3 Smedes, 660 ft. S, 660 ft. W of NW cor. of Smedes tract, Sec. 57-11s-6e.
Drlg. shale 5,710 ft.

Sweet Lake—Calcasieu Parish

Pure Oil Co.'s No. 13 Yount Lee, 800 ft. S, 66 deg. 42 ft. E of No. 12, Sec. 13 13-13.
T.D. 7,701 ft.; set 1,275 ft. of 9⅝-in. csg. and 6,439 ft. of 6⅝-in. csg. at 7,701 ft.; W.O.C.

Sulphur—Calcasieu Parish

Union Sulphur Co.'s No. 815 fee, Sec. 29-9s-10w.
T.D. 4,593 ft.; P.B. and sidetracked at 2,795 ft.; drlg. shale 3,211 ft.
Union Sulphur Co.'s No. 816 fee, Sec. 29-9s-10w.
T.D. 5,336 ft.; P.B. to 3,500 ft.; drlg. shale 3,824 ft.
Union Sulphur Co.'s No. 817 fee, Sec. 29-9s-10w.
T.D. 2,960 ft.; prepare to pump.

Starks—Calcasieu Parish

Gulf Prod. Co.'s No. 38 Lutcher Moore, Sec. 19-12s-12w.
Drlg. sand 3,805 ft.
L. R. Welhite No. 1 Industrial Lbr. Co., 675 ft. W and 160 ft. S of NE cor. of NE¼ of SE¼ of sec. 19-9s-12w.
Derrick.

White Castle—Iberville Parish

Shell Pet. Corp.'s No. 2 Shingle, 350 ft.

S. 275 ft. E of NW cor. of Shingle lease T.D. 5,218 ft.; salt; P.B. and sidetracked; drlg. shale 2,898 ft.

Miscellaneous Wildcats

TEXAS

Brazoria County

British-American Oil Prod. Co.'s No. 1 W. R. Nash, 1,121 ft. E of W line, 335 ft. S of N line of Thos. Alsberry League.
Made D.S.T. from 4,125-42 ft.; no results; will core to 4,147 ft. and run screen; shut down.

Gulf Prod. Co.'s No. 1 Wilkes & Smith, 5,510 ft. W along N line of 550-ac. tract from NW cor. of 311-ac. tract, thence 990 ft. S at R/A James Hall Sur.
T.D. 6,647 ft.; P.B. to 6,320 ft.; 7-in. csg. at 6,317 ft.

R. R. Osborne's No. 1 John L. Jones, 330 ft. each way out of N cor. of S½ of Lot 7, Blk. 1, J. C. Smith Sur.
S.D. 30 ft.

Texas Co.'s No. 2 Freeport Sulphur Co., Conception Arcola Sur.
Drlg. shale 4,407 ft.

Burleson County

Carl Dyer et al's No. 1 C. W. Young, 750 ft. EW line, 330 ft. SN line of 140-ac tract, John Byrd Sur.
Drlg. shale 1,150 ft.; no report.

Red Bank Oil Co.'s No. 1 Q. B. Crain, 330 ft. from N and W lines of 140-ac. tract and W. C. Pierce Sur.
Location.

Chambers County

Black Gold Oil Co.'s No. 1 Borrow, 4,433 ft. NW of the SE line, 3,080 ft. SW of NE line. Ruben Borrow Sur.
S.D. 6,033 ft.

Salt Dome Oil Co. No. 2 Lawrence, 466 ft. N of N line of Mrs. Julia H. Casey 532.05-ac. tract and 466 ft. W of most westerly E line of A. B. Lawrence 333.05-ac. tract, Solomon Barrow Sur.
Location.

South Gulf Oil Co.'s No. 1 J. T. White, 1,653 ft. from E line, 466 ft. from S line of 1,476-ac. tract, James McGahey Sur.
Location.

Stanolind O. & G. Co.'s No. 1 A. B. Middleton, 426 ft. from W line, 466 ft. from S line of A. D. Middleton 120-ac. tract, Shadrock Burney Sur.
T.D. 6,626 ft.; 15-min. D.S.T. from 6,571-6,626 ft.; tested 39 thribbles oil, 1 thribble drlg. mud and wash water, ¼-in. choke; W.P. 100 lbs.; 7-in. csg. cmtd. at 6,589 ft.; I.P. 27 bbls. per hour, ¼-in. choke; T.P. 700 lbs.; C.P. 1,350 lbs.

Calhoun County

Continental Oil Co. No. 2-A American Realty Co., 150 ft. NE of No. 2, Pedro Garcia Sur., Lot 1, Blk. "C."
Drlg. shale 5,150 ft.

Humble O. & R. Co.'s No. 1 Mrs. Eliza Welder, 5,685 ft. S, 55 deg. W from a part of intersection of St. L.B.&W. R.R. Sur. and NW line of Jose Maria Rios Sur., 7,210 ft. S, 35 deg. E at R/A Gardner Smith Sur.
Drlg. shale 4,124 ft.

Colorado County

Coyle & Concord's No. 1 fee, 550 ft. from N line, 1,950 ft. from E line of Sec. 45, T.&G.N. Sur.
Drlg. shale 5,730 ft.

Galveston County

Sun Oil Co.'s No. 1 J. D. Hughes, 1,660.9 ft. NW line, 1,212 ft. NE line of W. M. C. Baker Sur.
Drlg. sand and shale 5,797 ft.

Grimes County

Dr. Marshall et al's No. 1-B Todd, 300 ft. from E line and 175 ft. from N line of 150-ac. tract in extreme NW cor. of county (25 ft. N of No. 1).
T.D. 2,826 ft.; P.B. to 2,818 ft.; well flowing brackish water with small amount of gas through ¼-in. choke.

Harris County

A. C. Hill's No. 1-A Swilley 5,426 varas E of W line and 1,960 varas N of S line of Sur.-C Victor Blanco Sur.
Drlg. sandy shale 1,915 ft.

A. C. Hill's No. 1-B Swilley 6,141 varas E of W line, 1,960 varas N of S line of Sur., center of 200-ac. lease, 345 varas S of N line and 773 varas W of E line of lease. Victor Blanco Sur.
Drlg. shale 5,945 ft.

Texas Gulf Prod. and Bunte O. & G. Co. No. 1 West Moreland Dev. Co., 225 ft. W, 450 ft. S of SW cor. of J. C. McKenzie Sur., J. B. Pier Sur.
Rig up.

R. E. Young, tr.'s No. 2 P. S. Griffith, 2,476 ft. S of N line, 2,020 ft. E of W line of A. R. Bodman Sur.
S.D. 4,485 ft.; waiting on csg.

Hardin County

Frank Beaudoin et al's No. 1 Walton, A. L. Lancaster Sur.
S.D. 1,900 ft.

Republic Prod.-Houston Oil Co. No. 1 A. A. Burrell, 330 ft. NS line, 1,750 ft. WE line of A. A. Burrell Sur. No. 5-A.
Moving in.

Houston County

Zeni Oil Co.'s No. 1 Houston County Timber Co., L&G.N. Sur.
Coring shale 7,337 ft. (corrected).

Jackson County

L. A. Douglas' No. 1 I. N. Mitchel, 750 ft. W, 150 ft. N from NW cor. of A. F. Mitchell 100-ac. tract, Lolita area, S. F. Austin Sur.
S.D. 4,116 ft.

Jefferson County

Glenn McCarthy, Inc., No. 1 C. W. Howth, 2,330 ft.; 466 ft. SN line of survey, T.&N.O. Sur., sec. 10.
Rig up.

Humble O. & R. Co. No. 1 Mrs. Effie Willerton, 1,000 ft. WE line of Sec. 1, and midway between N and S lines of a 35-ac. tract, H.T.&B. Sur., Sec. 1-A35.
Drlg. shale 5,910 ft.

Sun Oil Co.'s No. 1 Herbert & Braunsard, 4,890 ft. NW along SW line and 466 ft. NE at R/A to SW line, B. Blackman Sur., Abst. No. 2.
Shale 8,282 ft.; 9⅝-in. csg. 8,210 ft.; S.D.; preparing to start up.

Tatum and Pendergrass No. 1 R. W. Owens, 160 ft. E of W line and 225 ft. S of N line of Lot No. 3, Blk. 9, Range 9, Port Arthur Land Co. subdv., Joseph Grigsley Sur.
S.D. 997 ft.

Matagorda County

Continental Oil Co.'s No. 1 Felfe, J. S. Criswell Sur., 2,990 ft. E of W line, 2,466 ft. N of S line of survey.
T.D. 7,620 ft.; cutting 6-in. csg. at 7,312 ft.

John Deering No. 1 R. A. Estelle, 2,000 ft. SE, 300 ft. NE from W cor. of 480-ac. tract in Tone and Jameson Sur.
Drlg. shale 3,466 ft.

Hammon Exploration Co.'s No. 1 Cleveland, 330 ft. NS line, and WE line of 48-ac. tract, E. Hall Sur.
T.D. 8,391 ft.; 7-in. csg. at 8,350 ft.; tested salt water.

Helmerich & Payne's No. 1 Hawkins, 350 ft. S. 70 deg. W of Cockburn Oil Co.'s No. 6 Hawkins.
T.D. 7,314 ft.; 5-in. csg. 7,326 ft.

Sterling O. & R. Co.'s No. 1 Baer Estate, 5,274 ft. SW of S cor. of Van Dorn and Beiss Sur., 400 ft. NW at right angles in Samuel Hart Sur.
T. D. 1,820 ft.; 10¾-in. csg. set at 1,820 ft.; W.O.C.

Sun Oil Co.'s No. 1 Craig, 1,546.9 ft. SW from N cor. along NW line of lease and survey, thence 157.3 ft. SE at right angles in Thomas Williams Sur.
Drlg. sand rock at 1,568 ft.

Montgomery County

W. C. Battaile's No. 1 Caswell, 2,490 ft. from E line, 150 ft. from S line of survey, David Davis Sur.
S.D. 350 ft.

Jack Frazier No. 1 Maxey, 330 ft. S, 330 ft. E of NW cor. of 500-ac. tract of James Brown Sur.
Bldg. road.

Seabreeze & Smith No. 1 Delta Land & Timber Co., 330 ft. from most westerly SW cor. of Thomas Shepperd Sur.
Moving in rig.

W. M. S. Thomson's No. 1 Scott, 1,191 ft. SN line, 482 ft. WE line, 1,623 ft. EW line of the F. A. B. Wheeler Sur.
T.D. 3,674 ft.; P.B. to 2,486 ft.; perforated csg. from 2,460-80 ft.; bailed to bottom; recovered small amount of colored fluid.

Orange County

Blue Line Oil Co.'s No. 1 J. E. Peet Richard, 900 ft. W of E line and 150 ft. S of N line of most easterly NE cor. of 128-ac. tract, Ballen Sur.
Drlg. shale 2,430 ft.; no report.

Coker Oil Co.'s No. 1 S. T. Mansfield, 500 ft. S, 500 ft. W from NE cor. of 80-ac. tract, J. W. Hall Sur.
S.D. 1,280 ft.

Smith & Ellis' No. 1 Pell.
T.D. 2,095 ft.; changing rigs.

Polk County

O. C. Davis et al No. 1 Knox, 1,450 ft. W and 1,920 ft. S of the NE cor. of survey, F. Chairs Sur.
Rig up.

Refugio County

Cecil Hagen et al's No. 1 Edith Clarkson, 1,736 ft. from N line, 3,820 ft. from E line of J. Coughlin Sur.
Location.

San Jacinto County

Cockburn Oil Co. No. 1 Cruse, 330 ft. from S and E lines of 163-ac. tract, H.&T.C. Sur.
Location.

Cockburn Oil Co. No. 1 Kilburn Moore, 330 ft. from S and E lines of 854.33-ac. tract in J. F. De Rumayor Sur.
Location.

Cockburn & Hargrove No. 1 Dixon & Falvey, 2,579 ft. S, 150 ft. E of NE cor. of Solomon Cole Sur., Christian Smith Sur.
Moving in rig.

John Deering et al's No. 1 Randolph, 330 ft. S of center of N line of Tract 7 of the Randolph Sub., V. Flores Sur.
Location.

Goldston & Decker No. 1 Randolph, 330 ft. S of center of Lot No. 7, 2,650 ft. NW along line of A. Neal Sur. from S cor. thence 1,600 ft. W at right angles, Vital Flores Sur.
Moving in.

J. E. Hooper et al's No. 1 R. B. Love, 475 S of N line, 2,000 ft. W of E line, 177-ac. tract, Drury McGee Sur.
Coring salt water sand 5,636 ft.

Victoria County

Heep Oil Corp.'s No. 1 J. J. Welder, 300 ft. SW line, 750 ft. from SE line of Nursery area, Phillip Graves Sur.
Drlg. water well.

Shell Pet. Corp.'s No. 2 McFadden, 11,350 ft. from NE cor. along N line, 2,310 ft. S of N line at R/A.
T.D. 5,490 ft.; made electrical coring test.

Walker County

Bradley et al's No. 1 Trinity Lumber Co., N 45 deg., E 1,205 ft., N 45 deg., W 400 ft. from S cor. of J. C. Harrison 320-ac. Sur.
Moving in derrick.

Wharton County

Pure Oil Co.'s No. 1 Paige, 1,397 ft. NE and 467 ft. SE from W cor. of 159.27-ac. lease, James Pirie Sur.
T.D. 7,270 ft.; preparing to core.

Sterling Oil & Ref. Co.'s No. 1 Frank Janik Sr., 1,859 ft. from N line, 467 ft. W from SE cor. of Janik tract, Johathan Scott Sur.
T.D. 8,667 ft.; 5-in. csg. at 7,831 ft.; P.B. to 7,875 ft.; perforated liner from 7,832-47 ft.

Texas Co.'s No. 1-C Pierce Est., 12,225 ft. W along S line of the W. M. Pettus Sur., 3,400 ft. N in the John Caldwell League.
T.D. 7,244 ft.; P.B. 5,085 ft.; preparing to sidetrack.

SOUTH LOUISIANA

Acadia Parish

Superior Oil Co.'s No. 1 Adam Smith, 334 ft. S, 35 deg. 35 min. E from NE cor of 28.93-ac. tract, Sec. 47-7s-1e.
Drlg. shale 8,110 ft.

Beauregard Parish

Richardson & Martin's No. 1 Southwest Lbr. Co.
Location.

Calcasieu Parish

Fred Oil Co.'s No. 2 Faist, 262 ft. E and S ft. S of NW cor. SE¼ Sec. 26-8s-10w.
S.D. 4,025 ft.

Lahay & Lambert et al's No. 1 Landry, 1,369 ft. southwesterly from NW cor., 2,600 ft. southwesterly from NE cor. of NW¼ of SE¼ of Sec. 23-11s-10w.
Spudded 23 ft. and S.D.

Wheeler Oil Corp.'s No. 1 School Lot, 1,705 ft. E. 1,325 ft. N of SW cor. Sec. 16-9s-7w.
S.D. 7,210 ft.

Cameron Parish

Magnolia Pet. Co.'s No. 1 J. B. Broussard, 330 ft. E and S, out of NW cor. of the SW¼ of SE¼ of Sec. 13-12s-9w.
5-in. csg. at 9,499 ft.; perforated csg. 9,366-78 ft.; tested 49 stands of salt water; well killed and plugged back to 7,968 ft.; prepare to test.

Pan American Prod. Co. No. 1 Lutcher-Moore, 17,000 ft. W and 4,208 ft. N of SE cor. Sec. 32-14s-11w.
Drlg. shale 5,000 ft.

Steinberger Pet. Co.'s No. 1 Drew, 330 ft. out of NW cor. NE¼ of Sec. 26-10s-11w.
Location.

Evangeline Parish

J. E. Ladue's No. 4 Vidrien, Sec. 34-3-3.
S.D. 1,635 ft.

Sparks-Mitchell and Jacobson's No. 1 Vidrine, 1,114 ft. S, 1,060 ft. W of NE cor. Sec. 47-4s-2e.
S.D. 1,635 ft.

East Feliciana Parish

Thompson Creek Oil Co.'s No. 1 Fannie Noland, 2,600 ft. E and 1,580 ft. N of SW cor. Sec. 70.
S.D. 1,589 ft.

Iberia Parish

Jefferson Lake Oil Co.'s No. 1 State, Twp. 12s-5e.
T.D. 8,655 ft.; drill stem stuck; prepare to sidetrack.

Meade Oil Co.'s No. 1 Hamilton, near town of Lose, in the NW cor. of parish, Sec. 38-12-5.
S.D. 200 ft.

Texas Co.'s No. 1 State Fausse Point.
D.S. stuck at 6,400 ft.; S.D.

Jefferson Davis Parish

J. K. Lewis' No. 1 Lockmoore, 150 ft. N and W of SE cor. NW¼ of Sec. 32-7-6.
Drlg. shale 6,038 ft.

Shell Pet. Corp.'s No. 1 Lacassan, 990 ft. N, 1,980 ft. E of SW cor. of Sec. 20-11s-5w
T.D. 8,220 ft.; reaming at 7,762 ft.

LaFourche Parish

Coastal Oil Co.'s No. 2 Constantine, 1,476 ft. N, 809 ft. E of SW cor. Sec. 36-21-22e.
Location.

St. Bernard Parish

Emerald Pet. Corp.'s "Shell Beach Properties" No. 1, on S edge of Bayou Louis, Sec. 31-12s-16e.
T.D. 7,385 ft.; hole caved in while S.D. at 5,480 ft.; cemented 7-in. csg. at 5,480 ft.

St. Mary Parish

Herton Oil Co.'s No. 1 Roame, 1,286 ft. N, 688 ft. E, SW cor. of Lot 13, Sec. 38-13s-9e.
T.D. 7,512 ft.; 7-in. csg. 7,460 ft.; swbd. salt water; prepare to workover.

St. Martin Parish

Texas Co.'s No. 1 State Lake, 5,180 ft. E. 350 ft. N of SW cor. of Sec. 10-10s-9e.
Made D.S. test from 6,905-17 ft.; tested S.W.; T.D. 6,917 ft.

S. C. Yingling et al No. 1 State, 2,957 ft. N and 1,115 ft. W of SE cor. of RE cor. of sec. 13-9s-8w.
Location.

S. C. Yingling No. 2 State, 3,066 ft. N and 2,003 ft. W of SE cor. of sec. 13-9s-8w.
Location.

Plaquemines Parish

Le-Tex Explta. Co.'s No. 1 Hero Plantation, Sec. 72-14s-24e.
S.D. 5,343 ft.; abd.

Southern Sulphur Co.'s No. 1 Manhattan Fruit Co.
S.D. 3,189 ft.

St. Tammy Parish

Danciger O. & R. Co.'s No. 1 Holdsworth, C NW¼ SE¼ Sec. 26-8s-14e.
Drlg. shale 5,210 ft.

Vermilion Parish

Delcambre & Shelton's No. 1 Adam Delcambre, south degrees E, 825 ft. from most northerly cor. of irregular Sec. 62-17-5.
S.D. 2,704 ft.

Vernon Parish

Liano Cooperative Oil Co. No. 3 Liano Del Rio, 1,185 ft. S and 1,000 ft. W of NE cor. of sec. 7-1n-9w.
Drlg. shale 1,738 ft.

Terrebonne Parish

Shell Pet. Corp.'s No. 1 Realty Operators, 2,000 ft. due S of E cor. of triangular Sec. 76, Sur. 102. 17s-17e.
Coring sand 6,285 ft.

E. C. TEXAS WILDCATS

Week Ending December 21

Camp Hill Area—Anderson County

Burke Bros. No. 1 S. G. Moore, 385 ft. from N and 330 ft. from E line of 36.5-ac. tract, J. Rosson Sur.
Location.

Sun Oil Co. No. 1 Carl Rosson, W. T. Davis Survey, 330 ft. from W line and 650 ft. from N line of tract.
Location.

Sun Oil Co. No. 2 Carl Rosson, W. T. Davis Survey, 330 ft. from E line and 466 ft. from N line of tract.
Location.

Long Lake Area—Anderson County

Tide Water-Seaboard No. 4 Shaw & Cern, Daniel Parker Sur., 993 ft. W of No. 3.
Location.

Tide Water Oil Co. et al's No. 2 Shaw & Cern, 933 ft. W of No. 1, D. Parker Sur.
Cored 5,315-30 ft.; recovered 1 ft. shale, 6½ ft. black shale, 6-in. ash, 2 ft. sand with light stain oil; 5,330-40 ft. 9½ ft. sand; 5,340-45 ft. 4½ ft. sand, stain oil; 7-in. 5,341 ft.; W.O.C.; T.D. 5,345 ft.; completed.

Standard Oil Co. of Kansas' No. 1 Robinson & Hombs, 2,300 ft. from W and midway of N and S lines of lease, J. Adams Survey.
T.D. 5,347 ft. hard sand; top sand 5,345-47 ft.; 7-inch 5,338 ft.

Angelina County

Lee-Tex Oil Co. No. 2 Southern Pine Lumber Co. (Guissler), 800 ft. N of No. 1 Guissler, 600 ft. from W line of B. J. Thompson Sur.
Drlg. shale 1,000 ft.

Morris et al's No. 1 Pruyear, cen. 165-ac. tract, Thos. Hank Sur., 7 miles E of Huntington.
Drlg. 500 ft.

Pioneer Exploration Co. No. 2 W. D. Ivey, S. Scarborough Sur., 300 ft. N of No. 1 N. Huntington.
Change operator to LaRue; began Dec. 13; 10-in. 20 ft.; drlg. 1,250 ft.

Schafer Co. No. 1 Phelps, 400 ft. from S and 150 ft. from W line of 320-ac. tract of J. J. Anselmo Sur., 1 mile NE of Diboll.
Elev. 239 ft.; T.D. 2,000 ft.; rep. boiler.

Bowie County

Tex-Ark. Oil Co.'s No. 1 Hamilton Estate, 600 ft. E and 350 ft. N lines, J. Milan Sur., 4 miles S of Red River.
S.D. 1,121 ft.

Woodley & Bentley's No. 1 Lumpkin, 330 ft. out of NE cor. of 245-ac. tract, J. McDermot Sur., 1 mile SW of Dalby Springs.
S.D. 120 ft.

Cherokee County

L. O. McMillan et al No. 1 S. W. Lang, Robt. Linnard Survey, 414 ft. from S line and 263 ft. from W line, of 30.96-ac. tract, 1½ miles SE T. J. Wood No. 1. New Birmingham Dev. Co. discovery well.
Setting surface csg.

Rowe-Hynes et al No. 1 H. L. Walker, 330 ft. from N and E of 51-ac. tract, A. Gibson Sur., 1½ miles NW of Mt. Selman.
Top Pecan gap, 2,910 ft.; drlg. 4,740 ft., shale; completed.

Collin County

Port Bolivar O. & R. Co.'s No. 1-A Dunning, 24 ft. W of No. 1, Wm. Creager Sur., 3 miles SE of Van Alystin.
Elev. 722 ft.; S.D. 3,865 ft.

Port Bolivar O. & R. Co.'s No. 1 J. Shirley, 330 ft. N and W of 310-ac. tract, J. Sorrell Sur., 4 miles SE of Anna.
Elev. 684 ft.; S.D. 1,962 ft.; skidded 60 ft. north.

Ellis County

Beasley O. & G. Co.'s Inc.'s No. 1 E Roller, 1,660 ft. from NW and 1,660 ft from SW line of Sur.
S.D. 160 ft.

Falls County

G. W. Langley No. 1 A. Springfield, P. Herrington Survey, 330 ft. from N line, and 330 ft. from W line of 60-ac. tract, NE Bremond.
Rig up.

Fannin County

Paul Garrett No. 1 G. D. Galloway, 300 ft. from S line and 195 ft. from W line of tract and Wm. M. Rice Sur., 1½ miles S of Leonard.
S.D. 15 ft.

Warner Moore et al's No. 2 Hancock Est., 1,300 ft. N and 500 ft. E of L. M. Baldock Sur., 1 mile E of Trenton.
Location.

Warner Moore et al's No. 1 Hancock, 400 ft. from W and 150 ft. N lines, Sec. 16, L. M. Baldock Sur., ½ mile S of Trenton.
Top sand 645 ft.; S.D. 689 ft.

R. Franklin Smith-Allen's No. 1 Argo, center of 16½-ac. tract in J. G. Swisher Sur.
T.D. 1,628 ft., sandy shale; S.D.

Grayson County

Olson Drlg. Co.'s No. 1 Southwestern Life Ins. Co., center of 160-ac. tract and J. C. Jamison Sur., 6 miles NW of Denison.
Elev. 767 ft.; gas sand 4,441-63 ft.; ran Schlumberger; showed very little porosity; drlg. lime and shale 4,523 ft.

Port Bolivar O. & R. Co.'s No. 1 C. Taylor, 330 ft. S and W of 1,542-ac. tract, Pilkington Sur., 2¼ miles SE of Gunter.
Drlg. shale and lime 3,930 ft.

Henderson County

C. & G. Oil Co.'s No. 1 Sterrett, 850 ft. from S and 200 ft. from W of Isham Marshall Sur.
Drlg. sandy shale 1,368 ft.

Sparks et al No. 1 P. E. Perry, 1,000 ft. from E and N of most northerly S line of 167.8-ac. tract in A. York Sur., 500 ft. W of H. B. Ashburn dry hole, 5 miles S of Brownsboro.
Location.

H. M. Wilson's No. 1 fee, 970 varas S of NE cor. of 942-ac. tract, 5 miles N of Malakoff.
T.D. 1,900 ft.; washing to bottom.

Hill County

Roger Lacey et al's No. 1 J. H. Atchison Est., 330 ft. S and E of E. Carroll Sur., 5 miles W of Hillsboro.
S.D. 2,210 ft.

Kaufman County

Murry & Emerson's No. 1 G. W. Martin, 1,660 ft. from W and 20 ft. from S of 140-ac. tract, from W. L. C. Butler Sur., 2 miles NE of Kemp.
Top Austin 1,940-74 ft.; S.D. 2,402 ft.; sidetracking tools.

Lamar County

Bruce Bros. No. 1 Chas. Price, 300 ft from S of most southerly SW cor. and 1,000 ft. from W line of Wm. Nelson Sur., 10 miles NE of Paris, 1 mile W of Trout.
S.D. 336 ft.

L. W. Dennis' No. 1 W. C. Clark, 900 ft from E and 1,500 ft. from N line of G. H. Hall Sur., 3 miles NE of Reno.
Derrick.

L. W. Dennis, trustee's No. 1 Mrs. E. Lawrence, 300 ft. from N and 1,160 ft. from W of T. B. Roundtree Sur., 3 miles NE of Blossom.
Derrick.

Geo. Greer et al's No. 1 Calvin Marshall, 921 ft. from S and 2,292 ft. from E line of survey, 7 miles NE of Blossom in M.E.P.R.R. Sur.
Location.

Texas-Gulf Pet. Co.'s No. 1 A. L. Darnell, 1,490 varas from S and 1,650 varas from W line of H. L. Williams Sur., 4 miles NE of Paris.
S.D. 2,630 ft.

North Texas Synd., Eric T. Bradley, tr.'s No. 1 Wright, Alfred Moore Sur., 1,980 ft. S and 4,300 ft. from E line of Sur.
T.D. 2,702 ft.; S.D.

Limestone County

D. Crawford No. 2 Mary Ward, 400 ft. NE of No. 1, Pedro Varela Sur.
Began Dec. 15; 10-in. 120 ft.; drlg. 1,-260 ft.

D. Crawford's No. 1 Mary Ward, 150 ft. out of NE cor. 22-ac. tract, P. Varella Sur.
T.D. 3,661 ft.; pumping, no gauge; estimated 75 bbls. a day.

Money Oil Co. No. 1 Rosson Est., 150 ft. from NE and SE lines of Blk. 4, Pedro Varela Sur., in Nigger Creek field.
Location.

McLennan County

T. Cunningham's No. 1 M. G. McKee, 940 ft. from S and 2,640 ft. W of 640-ac tract, M. Snell Sur., near Bruceville.
Derrick.

Riley & Barrow's No. 1 Hortsman, V. C. Walters Sur., 500 ft. from most northerly N line, 500 ft. from most westerly E line, 666-ac. tract, 1½ miles S McGregor.
S.D. 475 ft.

Nacogdoches County

Rosser Bros. & Jackson's No. 1 Matthew 330 ft. out of NE cor. 66-ac. tract, Pedro J. Esparza Sur., 5 miles S of Nacogdoches.
S.D. 665 ft.

Navarro County

McCullough et al's No. 1 C. Berry, 330 ft. from SE cor. of 25-ac. tract, 1 mile W of Dawson, William Moss Sur.
S.D. 1,500 ft.

Peyton Bros. No. 1 J. F. Rushing, 150 ft. from N and W line of 12.5-ac. tract in H. Ford Sur., 2 miles W of Currie.
Location.

E. M. Thomason No. 1 Estes Bros., 150 ft. from NW line and 750 ft. from SW line, Blk. 11, 1 mile E of Roane.
Drlg. 800 ft.

E. M. Thomason's No. 1 T. P. Shivers, 1,500 ft. from W. and 600 ft. N. of 89-ac. tract, W. R. Bowen Sur., 3 miles S. of Corsicana.
T.D. 2,187 ft.; S.D.

Rains County

Allen & McClung's No. 1 Giles, T. Cunningham Sur., Abst. 143, 330 ft. from W line and 200 ft. from N line of 105-ac. Giles tract, 5 mi. SW of Emory.
Derrick.

Allen & McClung's No. 1 Ida Bullard N. Brantely Sur., 1,300 ft. from W line and 200 ft. from N line of 25-ac. tract 9 mi SW of Emory.
Began Dec. 15; 12½-in. 117 ft.; W.O.C.

Allen & McClung & Collard's No. 1 Cain, 1,350 ft. N and 1,550 ft. W line of J. Harges Sur., 1 mile NW of Emory.
Location.

Red River County

Abercrombie & Harrison's No. 1 Southern Pine Lumber Co., 1,148 ft. from S and 1,356 ft. from E, Joshia Davidson Sur., 12 miles NW of Clarksville.
Location.

Joe Dinger et al's No. 2 Morris, John Guest Sur., approx. 175 ft. NW of No. 1 Morris, 1 mile S Detroit.
T.D. 825 ft.; S.D.

R. H. Chew et al's No. 1 J. F. Brooks, 900 ft. N and 600 ft. of W line of 320-ac. tract, B. Gooch Sur., ½ mile S of Bagswell.
Derrick.

Feltner's No. 1 D. Rust, C. C. Wilborn Sur., 134 ft. N and 354 ft. W of most southerly SE cor. of Sur., just south of Avery.
Derrick.

Rockwall County

Dodd et al's No. 1 M. F. Lofland, 2,250 ft. from N and 2,250 ft. from E line of 293-ac. tract, W. H. Beird Sur., 2½ miles SE of Rockwall.
S.D. 192 ft.

Rusk County

McCallum et al No. 1 E. C. Gary, 600 ft. from E and 340 ft. from N of 265-ac. tract, John Piburn Sur., 5 miles S of Henderson.
Derrick; 4,100-ft. test.

A. Shipman et al's No. 1 Citizens Natl. Bank, NE cor. of 126-ac. tract, J. J. O'Barbo Sur., 4 miles NE of Henderson.
T.D. 3,000 ft.; S.D.

Smith County

Frank D. Staples No. 1 Luther Hale, T. C. William Survey, 1,460 ft. from E line and 192 ft. from S line of tract, 3½ mi. NW Arp.
T.D. 50 ft.; S.D.

Titus County

Howze, Thompson & Peveto No. 1, C. M. Carr, North M. V. Delgado Survey, 2,060 ft. from easterly E line and 1,328 ft. from northerly N line of Sur., 1½ miles E of Talco.
Pits.

A. Rotondi's No. 1 Lillianstun, 1,200 ft. E from NW cor. of J. Bodt Sur. and 330 ft. N, but in W. H. Crawford Sur., 5 miles NE of Talco.
Elev. 391 ft.; derrick.

Van Zandt County

E. C. Del Cambre et al No. 2 A. Crim, 155 ft. from N and E lines, Nacogdoches Co. School lands.
Elev. 490 ft.; rigged up.

J. H. Gilliam et al's No. 1 E. S. Martin, 185 ft. most southerly SE line, and 208 ft. from most easterly SW line of tract, James Hamilton Sur., 3 miles NE of Wills Point.
Location.

Wood County

Gulf Prod. Co. No. 1 C. D. McCollum, 330 ft. out of NE cor. of 29.6-ac. tract, Jos. Simpkins, ½ mile S of Alba.
Location.

LA.-ARK. WILDCATS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

Bienville Parish

DeSoto O. & G. Co. No. 1 C. R. Mower, 270 ft. S, 400 ft. W, NE cor. NW SW sec. 9-16-10.
Rigging up.

Lide & Greer No. 1 Davis Bros. Lbr. Co., 660 ft. S and W, NE cor. SE sec. 12-16-5w.
Rigging up.

Bossier Parish

Ark.-La. Gas Co. No. 1-B Werner, 1,256 ft. N, 624 ft. E, SW cor. SE SE sec. 7-17-11.
Comp. 40,180,000 of gas, 4,246 ft.

Bossier O. & G. Co. No. 3 Sherrill, 330 ft. N and W, SE cor. sec. 13-19-12.
S.D. 2,180 ft.

Geo. H. Bringhurst et al No. 1 Buckley, NE SW sec. 36-21-13.
Fishing for D.S. 375 ft.

Producers O. & G. Co. No. 1 Pettitt, 330 ft. S and W, NE cor. NW sec. 17-17-11.
Coring 4,275 ft.

Producers O. & G. Co. No. 1 Edwards, 660 ft. N and W, SE cor. sec. 27-18-11.
S.D. for fuel 360 ft.

Triangle Drlg. Co. No. 3 Skannal, Unit 50, S and W of C of NE.
S.D.; rig repair, 2,714 ft.

Caddo Parish

J. Ed Bailey, tr., No. 1 Hartzo, NW cor. NE NW sec. 28-22-16.
S.D. 2,136 ft.

Bayou State Oil Co. No. 1 Brown, 150 ft. N, 300 ft. E, SW cor. NW SE sec. 28-22-15.
Drlg. 910 ft.

John D. Blalock No. 2-A Seybert, 270 ft. N and 320 ft. E of C sec. 17-20-15.
Dry and abd. 1,500 ft.

Falcon Oil Co. No. 1 Glassell, 1,615 ft. N. 994 ft. E, SW cor. sec. 26-20-15.
Set 6-in. 2,205 ft.

F. D. Hyde No. 1 Thigpen & Herold, 350 ft. S and E, C sec. 5-15-15.
S.D. 2,012 ft.

Max Brandt No. 1 Hughes, SW cor. NE NW sec. 15-20-15.
Tested 500,000 ft. gas; S.D.; W.O. 2,206 ft.

Shreveport Oil Corp. No. 7-B Muslow, 495 ft. N, 1,320 ft. E, SW cor. sec. 4-20-15.
Comp.; pumping 25 bbls.; 2,176 ft.

Shreveport Oil Corp. No. 2-G Muslow, 780 ft. S, 578 ft. W, NE cor. sec. 9-20-15.
Comp.; pumping 40 bbls.; 2,185 ft.

Shreveport Oil Corp. No. 8-B Muslow, 1,-760 ft. E, 280 ft. N, SW cor. NW sec. 4-20-15.
Rigging up.

Ty-Stan, Inc., No. 1 Jolly, 400 ft. S and E, NW cor. SW SW sec. 22-22-15.
S.D. 2,820 ft.

Caldwell Parish

Caldwell Drlg. Co. No. 2 Gore, 280 ft. S, 660 ft. W, NE cor. SE sec. 30-12-3e.
T.A. 765 ft.

Critchett & Woods No. 1 Kyles, NE cor. SW NE sec. 18-11-3e.
Coring 1,290 ft.

G. W. Zeigan et al No. 1 La.-Central Lbr. Co., 175 ft. S and E, NW cor. SW SW sec. 25-12-3e.
S.D. 1,600 ft.

Claiborne Parish

J. H. Lester No. 1 Robinson, 1,650 ft. N, 330 ft. E, SW cor. sec. 16-21-6.
Drlg. shale 1,705 ft.

E. T. Oakes No. 1 H. W. Patton Est., 660 ft. S and W, NE cor. sec. 1-20-5w.
S.D. 4,242 ft.

Ryan Oil Corp. No. 1 F. A. Gladney, 660 ft. S, 330 ft. E, NW cor. SE sec. 10-23-16, sec. 27-20-7.
Recmtd. surface csg. at 4,517 ft.

United Gas Public Service Co. No. 2 Durfett, 660 ft. N and 1,980 ft. E, SW cor. sec. 31-20-5.
Coring 4,406 ft.

Concordia Parish

Zeni Oil Co. No. 1 Young, 1,200 ft. W, 100 ft. N, SE cor. sec. 28-6n-3e.
Set 12½-in. 91 ft.; drlg. 1,004 ft.

De Soto Parish

E. B. Bird et al No. 1 J. H. Johns, 330 ft. N and W, C sec. 20-14-6.
Tested S.W. 2,622 ft., S.D.W.O.

Sam Goldman No. 1 G. R. Stell, 330 ft. S and W, NE cor. sec. 5-12-16.
Set 10-in. 320 ft.; drlg. 2,610 ft.

A. G. Halbach et al No. 1 Staton, 150 ft. N and E, SW cor. SE sec. 29-13-14.
Drlg. 1,270 ft.

Union Pet. Co. No. 1 Hill, sec. 3-10-13.
S.D. 1,400 ft.

J. L. Ryan et al No. 1 Jackson, 330 ft. N and E, SW cor. sec. 1-11-14.
Drlg. 65 ft.

Grant Parish

Alexander et al No. 1 Maxwell, sec. 9-9-1e.
Set 6-in. 1,521 ft.; T.D. 1,582 ft.

Lincoln Parish

Caldwell Land & Timber Co. No. 1 J. K. Hammons, 330 ft. S and E, NW cor. SE SW sec. 30-18-1w.
Derrick.

Morehouse Parish

Zeiger & Bacon No. 2 Crossett Lbr. Co., 2,670 ft. N, 505 ft. E, SE cor. SE SW of sec. 36, in sec. 41.
Abd.; will not drill.

Ouachita Parish

Carbon Consolidated No. 2 Interstate, 330 ft. S, 660 ft. E, NW cor. SW sec. 32-19-4e.
Comp.; 1,500,000 ft. of gas, 2,183 ft.

Interstate Nat. Gas Co. No. 39 fee, 660 ft. S and E, NW cor. NE NE.
Set 8-in. 733 ft.; drlg. 1,850 ft.

Interstate Nat. Gas Co. No. 41 fee, 809 ft. N, 274 ft. W, SE cor. SW sec. 19-19-4e.
Comp.; 1,000,000 ft. of gas, 2,200 ft.

Natchitoches Parish

Ab Jones' No. 1 Brown Lbr. Co., 400 ft. N, 330 ft. W, SE cor. Sec. 5-10-10.
S.D. 1,033 ft.

Union Petroleum Co.'s No. 1 DeBlieux, 1,395 ft. E, 150 ft. S, NW cor. Sec. 33-10-7.
Fishing for D.S. 2,850 ft.

Red River Parish

Indis Oil Co.'s No. 1 La. Pecan Co., 2,590 ft. W and 850 ft. N of SE cor. Sec. 27-13-11.
Dry and abd. 1,005 ft.

J. S. Tuffree's No. 1 Wilkinson, 1,320 ft. S and W, NE cor. Sec. 11-13-11.
S.D. 1,395 ft.

Richland Parish

J. S. Morrisey No. 1 Jones, 1,293 ft. N, 636 ft. E, SW cor. sec. 15-18-7e.
Set 10-in. 176 ft.

Arthur Wray No. 1 Slocum, 2,436 ft. S, 560 ft. W, NE cor. sec. 10-17-6e.
Set 12-in. 136 ft.

Sabine Parish

B. S. & M. Oil Co.'s No. 1 Tatum, 330 ft S and E, NW cor. NW SE Sec. 12-8-18.
P.B. to 1,590 ft. from 2,100 ft.

Helena O. & G. Co. No. 2-A Frost Lbr., 330 ft. N and W, SE cor. sec. 19-19-13.
Swbng. to test 1,735 ft.

Geo. L. Pace's No. 4 DeSoto Corp., 330 ft. S and W NE cor. SE SE Sec. 27-10-13.
Bailing to test 1,895 ft.

Claude H. Smith No. 1 Whitney Corp., 330 ft. S, 990 ft. W, NE cor. sec. 19-10-13.
S.D. 750 ft.

Lee Whitehurst No. 1 Latham, 660 ft. N, 440 ft. W, SE cor. SW sec. 19-9-13.
Rigging up.

Union Parish

United Carbon Co. No. 2 Stovall, 1,180 ft. S, 750 ft. E, C sec. 28-21-4e.
Set 8-in. 750 ft.; set 6-in. 2,060 ft.

Vernon Parish

Llano Del Rio Co. No. 2 Gulf Lbr. Co., 1,285 ft. S, 1,000 ft. W, NE cor. sec. 7-1n-9w.
Set 10-in. 45 ft.; drlg. 1,850 ft.

Webster Parish

J. L. Edwards No. 1 Hooper, 330 ft. S and E, NW cor. SW sec. 8-17-9.
Drlg. 250 ft.

Lyons & Myers No. 1 Leola Brantley, 330 ft. S and E, NW cor. SW SE sec. 1-21-9.
Drlg. 1,993 ft.

Ohio Oil Co. No. 1 R. L. Holloway, 660 ft. S, 760 ft. W, C Sec. 23-21-10.
Rigging up.

Winn Parish

Parsons et al's No. 1 Tremont Lbr. Co., 660 ft. S, 330 ft. E NW cor. SW Sec. 10-12-2w.
S.D. 1,120 ft.

ARKANSAS

Clark County

Doris Tripanoff, tr., No. 1 W. Gibbons, sec. 27-8-18.
Drlg. 522 ft.

Columbia County

Magale & Elam No. 1 L. Garrett, 330 ft. N and W, SE cor. NE SW sec. 13-17-20.
Set 10-in. 200 ft.; drlg. 1,816 ft.

Southern States Gas Co.'s No. 1 Piney Woods Lbr. Co., 330 ft. N and E, SW cor. NE NW Sec. 10-20-22.
S.D. 1,924 ft.

Hempstead County

G. L. Glass, tr.'s No. 1 May B. O'Bier, Sec. 22-12-23.
Derrick.

F. W. Martin's No. 2 Lafferty, C NW Sec. 17-14-24.
Rigging up.

LaFayette County

Earl F. Fox' No. 2 Coleman Bros., NE NE Sec. 30-16-24.
Set 10-in. 135 ft.

Erwin & Leach No. 3 Bodcaw Lbr. Co., 330 ft S and E, NW cor. sec. 20-16-13.
Moving in rig.

Kamon & Neely's No. 1 Cockran, NW cor SE SW Sec. 26-19-25.
S.D. 4,450 ft.

Joe Modisett's No. 1 Red River Lbr. Co., C SW SW Sec. 21-19-14.
Fishing for D.S. 5,316 ft.

Riggs Bros.' No. 1 Dubose, SE cor. SW NW Sec. 35-15-24.
Tested S.W. and S.D. 2,630 ft.

Transportation Pet. Co.'s No. 1 Cockran, 300 ft. S and W, NE cor. SE Sec. 26-19-25.
Coring 3,412 ft.

Miller County

E. J. Donohue's No. 4 Beck, 330 ft. N and W, SE cor. NE SE Sec. 33-15-26.
S.W. and abd. 2,952 ft.

M. D. K. Fitzwater's No. 1 E. H. Beck, 150 ft. N and E, SW cor. NW SW Sec. 34-15-26.
W.O.S.R. 2,919 ft.

Haynes Prod. Co.'s No. 1 Embree estate, 330 ft. N and W, SE cor. SW SW sec. 9-20-23.
Drlg. 5,300 ft.

King Oil Corp.'s No. 1 G. W. Crank, SW NE Sec. 19-16-25.
Drlg. lime 2,635 ft.

M. H. S. Oil Co.'s No. 2 Beck, Sec. 34-15-26.
W.O.S.R. 2,928 ft.

L. H. Mahon et al's No. 1 Miller Land & Timber Co., SW cor. SE Sec. 29-18-27.
S.D. 1,801 ft.

Monroe County

J. R. Lockhart et al's No. 1 Rue Abramson, SE cor. SE SE sec. 19-1s-1w.
Arranging to resume drlg. 3,338 ft.

Nevada County

Sneed & O'Mara No. 1 Floyd Munin, C SW Sec. 14-14-[illegible].
Drlg. 1,650 ft.

Ouachita County

Benedum & Trees' No. 1 H. Brighton, C NE SW Sec. 29-14-12.
T.A. 5,197 ft.

Grigsby & Aarner No. 1 Burris, 330 ft. N and E, SW cor. NW NE Sec. 19-1s-12.
S.D.; W.O. 3,050 ft.

Snow-Black Pet. Co.'s No. 1 Bedford, 680 ft. N and 150 ft. E, SW cor. Sec. 32-11-18.
Derrick up on new hole.

W. B. Street, trustee's No. 1 Roth & Cartier, 330 ft. N and E, SW cor. SW NE.
Testing 1,404 ft.

Poinsett County

Rockwell Dev. Co. No. 2 W. A. Smith, 52 ft. S, 190 ft. E of center NE NE sec. 13-11n-3e.
Drlg. 650 ft.

Pulaski County

Base Line Oil Co. No. 1 Wilson, SW cor. NE SE sec. 28-1s-11w.
Set 8¼-in. 123 ft.

Sevier County

Pendleton & Vaughn's No. 1 Dierke, C NW NE Sec. 14-10-29.
W.O.; cable tools 610 ft.

Union County

J. J. Allen No. 1 Union Sawmill, 750 ft. W. 330 ft. N, C sec. 8-17-12.
S.D.; rig repair, 2,490 ft.

Arkansas Southern Oil Co.'s No. 1 F. R. Laney, Sec. 36-19-16.
Installing larger rig 175 ft.

J. C. Buckbee, Tr.'s No. 1 Sloan, 330 ft. N and E, SW cor. SE NW.
W.O.S.R. 2,160 ft.

J. E. Crosbie, Inc., No. 2 Sullivant, 200 ft. N, 250 ft. E. SW cor. SE sec. 12-17-14.
Set 8-in. 3,154 ft.

Mrs. R. K. Jones et al's No. 1 Davis, 330 ft. N and W, SE cor. NW NW Sec. 28-16-14.
Arranging to test 3,297 ft.

MISSISSIPPI

Bolivar County

White & Jones' No. 1 Ballou, SE SE NW Sec. 17-24n-7w.
S.D. 1,614 ft.

Clarke County

L. Beckwith et al's No. 1 Long Bell Lbr. Co., 538 ft. S, 125 ft. W of C Sec. 10-2n-16e.
T.A.; lack of funds.

Clarke County Oil Co.'s No. 1 Dora Butler, C SW SW Sec. 15-2n-16e.
Set 10-in. 63 ft.

Greene County

United Gas Pub. Ser. Co.'s No. 1 William Unit, 200 ft. N, 100 ft. W, C SW Sec. 6-15-5w.
Drlg. 2,550 ft.

Harrison County

Big Ridge Oil Co.'s No. 1 Hinzin, NE Sec. 13-7s-10w.
S.D.; W.O. 1,100 ft.

Lafayette County

W. L. Stewart et al's No. 1 Russell, 1,320 ft. N, 1,720 ft. E, SW cor. Sec. 9-10s-1w
Drlg. 2,670 ft.

Lauderdale County

Bob Dalton's No. 1 Bounds, Sec. 34-7n-15e.
S.D.; W.O. 1,600 ft.

Warren County

H. W. Elliott et al's No. 2 R. L. Parker, 780 ft. E, 1,570 ft. S, NW cor. Sec. 14-14n-1e.
S.D.; W.O. 1,600 ft.

Washington County

Perkins & Dees' No. 1 Lee, 1,500 ft. E. 500 ft. N, SW cor. Sec. 33-15n-3w.
S.D. 2,175 ft.

Winston County

Jack Vale et al's No. 1 Moody, 713 ft. N, 667 ft. E, SW cor. NW SW Sec. 3-13n-14e.
Set 6-in. 2,212 ft.

ALABAMA

Houston County

Rice O. & G. Co.'s No. 1 Oakley Est., SE cor. NW SW Sec. 9-3n-29e.
S.D. 3,035 ft.

Lamar County

DeSoto O. & G. Corp.'s No. 1 Gardner, Sec. 22-15s-16w.
Drlg. 4,705 ft.

Mobile County

J. C. Prine's No. 1 C. H. M. King, N½ NE Sec. 4-1n-4w.
Drlg. 2,850 ft.

FLORIDA

Lake County

Oil Dev. Co. of Florida's No. 1 South Lake, SE SE Sec. 17-24s-25e
Cmtd. 9⅝-in. csg. at 2,200 ft.

LA.-ARK. PROVEN

NORTH LOUISIANA

Caddo—Bodcau

Ark.-La. Gas Co. No. 7 Rodessa Oil & Land Co., 330 ft. S and W, NE cor. NW NE sec. 23-23-16.
Rigging up.

Ark.-La. Gas Co. No. 6 Rodessa Oil & Land Co., 400 ft. S, 200 ft. E, NW cor. SW NW sec. 23-23-16.
Drlg. 4,730 ft.

Ark.-La. Gas Co.'s No. 5 Rodessa O. & Land Co., 289 ft. S, 140 ft. E, C Sec. 23-23-16.
Drlg. 5,590 ft.

Bartex Pipe Line Co.'s No. 1 Norton Est., 660 ft. N and W, SE cor. NE Sec. 13-23-15.
Drlg. 5,130 ft.

Bartex Pipe Line Co.'s No. 1 Rodessa O. & Land Co., 660 ft. N and W, SE cor. NE SE Sec. 13-23-16.
Derrick.

Danciger & Hall's No. 1 Willis C Lot 5, Blk. 7, Sec. 23-23-16.
Drlg. 1,700 ft.

Haynes Prod. Co. No. 5 Sexton, 287 ft. S, 308 ft. W, NE cor. NW SE sec. 14-23-16.
Set 12½-in. 250 ft.; drlg. 785 ft.

Haynes Prod. Co. No. 5 Lawton, 1,980 ft. E, 968 ft. N, SW cor. sec. 14-23-16.
Drlg. 4,933 ft.

Haynes Prod. Co. No. 6 Lawton, 290 ft. S, 330 ft. W, NE cor. SE NW sec. 14-23-16.
Set 12½-in. 250 ft.

Haynes Prod. Co. No. 1 J. Caldwell, 660 ft. N, 2,079 ft. E, SW cor. sec. 13-23-16.
Drlg. 5,592 ft.

Haynes Prod. Co. No. 2 Caldwell, 660 ft. N, 770 ft. E, SW cor. SW SE sec. 12-23-16.
Set 12½-in. 257 ft.

Haynes Prod. Co. No. 4 Lawton, 290 ft. S, 336 ft. W, NE cor. SE SW sec. 14-23-16.
Set 7-in. 5,863 ft.; T.D. 5,870 ft.

Haynes Prod. Co.'s No. 1 Mattie Pitts, 290 ft. N, 264 ft. W, SE cor. NE NW sec. 14-23-16.
Set 7-in. 5,876 ft.

Haynes Prod. Co.'s No. 4 Sexton, 337 ft. N, 230 ft. W, SE cor. SW NE sec. 14-23-16.
Comp.; 174 bbls. per hr., 6,030 ft.

Lion Oil Ref. Co. No. 1 J. M. Wynn, 1,900 ft. N, 660 ft. E, SW cor. sec. 9-23-15.
Drlg. 2,650 ft.

M. H. Marr et al's No. 1 W. J. Hunter, 330 ft. S and E, NW cor. SW sec. 13-23-16.
Testing 6,040 ft.

Geo. Mannahan's No. 1 T. M. Comegys, 330 ft. N and W, SE cor. NE SE Sec. 10-23-16.
Swbng. to test 5,905 ft.

R. W. Norton No. 3-A Caddo Levee Board, C NE SW sec. 21-23-16.
Drlg. 4,280 ft.

R. W. Norton No. 2 Tyson heirs, 658 ft. S, 1,980 ft. W, NE cor. sec. 33-23-16.
Set 9⅝-in. 2,080 ft.; drlg. 4,713 ft.

Pelican Oil & Gasoline Co. No. 8 Sexton, 650 ft. N, 990 ft. W, SE cor.
Set 16-in. 257 ft.; drlg. 683 ft.

Pelican Oil & Gasoline Co. No. 7 Sexton, 330 ft. S and W, NE cor. NE SE sec. 14-23-16.
Drlg. 5,027 ft.

Pelican Oil & Gasoline Co. No. 5 Sexton, 330 ft. N and W, SE cor. SE NE sec. 14-23-16.
Drlg. 5,456 ft.

Pelican Oil & Gasoline Co.'s No. 4 Sexton, 330 ft. S and W, NE cor. SE NE sec. 14-23-16.
Drlg. 5,056 ft.

Pelican Oil & Gasoline Co.'s No. 6 Sexton, 330 ft. S and E, NW cor. NE SE sec. 14-23-16.
Set 7-in. 5,964 ft.; T.D. 6,010 ft.

Pelican Oil & Gasoline Co.'s No. 3 Sexton, 330 ft. S and E, NW cor. SE NE Sec. 14-23-16.
Set 7-in. 5,939 ft.; T.D. 5,973 ft.

Pelican Oil & Gasoline Co. No. 10 Sexton, 330 ft. S and E, NW cor. SE SE sec. 14-23-16.
Set 16-in. 250 ft.; drlg. 785 ft.

United Gas Public Service Co. No. 2 Bremer Unit, 2,173 ft. S, 660 ft. E, NW cor. sec. 22-23-16.
Set 9⅝-in. 2,151 ft.; drlg. 3,450 ft.

United Gas Public Service Co. No. 3 Bremer Unit, sec. 22-23-16, 328 ft. N. 565 ft. W of center.
Drlg. 4,003 ft.

United Gas Public Service Co. No. 4 Bremer Unit, sec. 22-23-16, 289 ft. S, 140 ft. W. center.
Set 9⅝-in. 2,132 ft.; drlg. 3,403 ft.

United Gas Public Service Co. No. 1 Brewer, 2,000 ft. N, 720 ft. E, SW cor. sec. 21-23-16.
Set 9⅝-in. 2,158 ft.; drlg. 3,490 ft.

United Gas Public Service Co. No. 1 V. I. Miller, 990 ft. S and E, NW cor. sec. 14-23-16.
Drlg. 3,846 ft.

United Gas Public Service Co. No. 1 W. A. Mitchell, 1,980 ft. N, 1,922 ft. W, SE cor. of frac. sec. 20-23-16.
Set 9⅝-in. 2,157 ft.

United Gas Public Service Co. No. 4 Rodessa Oil & Land Co., 350 ft. N, 160 ft. E, C sec. 22-23-16.
Set 9⅝-in. 2,130 ft.; drlg. 2,742 ft.

United Gas Public Service Co. No. 5 Rodessa Oil & Land Co., 1,178 ft. S, 660 ft. E, NW cor. sec. 22-23-16.
Set 9⅝-in. 2,160 ft.; drlg. 2,470 ft.

United Gas Public Service Co. No. 6 Rodessa Oil & Land Co., 1,980 ft. W, 1,320 ft. N, SE cor. sec. 15-23-16.
Drlg. 4,080 ft.

United Gas Public Service Co. No. 1 W. B. Spearman, 660 ft. N, 1,980 ft. E, SW cor. sec. 15-23-16.
Set 9⅝-in. 2,179 ft.; drlg. 3,110 ft.

United Gas Public Service Co.'s No. 2 Ardis & Co., 330 ft. N, 1,980 ft. E, SW cor. sec. 14-23-16.
Drlg. 5,195 ft.

United Gas Public Service Co.'s No. 3 Rodessa O. & Land Co., 660 ft. S, NW cor. sec. 23-23-16.
Drlg. 5,825 ft.

United Gas Public Service Co.'s No. 1 Poole, 660 ft. S and W, NE cor. Sec. 21-23-16.
Testing 5,997 ft.

United Gas Public Service Co.'s No. 1 Ardis & Co., 660 ft. N, 1,980 ft. W, SE cor. Sec. 14-23-16.
Comp.; 63 bbls. per hr., 6,010 ft.

G. H. Vaughn Prod. Co. No. 2 Hunter Derryberry, 330 ft. S, 772 ft. W, NE cor. NW NW sec. 14-23-16.
Coring 6,000 ft.

Sabine Parish—Zwolle

Alexander & Crane's No. 1 Fogman, SE cor. N½ SW NE Sec. 18-7-11.
S.D. 2,655 ft.

Ivan A. Allen No. 1 Travis, 330 ft. S and W of NE cor. NE NW Sec. 13-7-11.
W.O. 6-in. csg., 2,361 ft.; (corrected).

Ellis Prod. Co. No. 1 Williams, 330 ft. S and W, NE cor. SE NE sec. 23-7-11.
S.D. 115 ft.

H. C. Mauilding's No. 1 Davis, 350 ft. N and W, SE cor. NE NE Sec. 2-7-11.
S.D. 400 ft.

A. H. Tarner's No. 1 Baker, 330 ft. S and E NW cor. NW NE Sec. 36-8-12.
Drlg. 4,418 ft.

EAST TEXAS

(Border Counties)

Cass County

American Liberty Oil Co.'s No. 1 J. B. Rodgers, 330 ft. N, 430 ft. W, SE cor. of 160-ac. tract in C. M. Robinson Sur.
Coring 5,980 ft.

R. W. Norton's No. 1 Haywood, 660 ft. N, 580 ft. W, SE cor. Priscilla Evans Sur.
Coring 5,950 ft.

Harrison County

R. C. Payne et al's No. 1 Lowery, H. D. Spain Sur.
P.B. to 3,524 ft.

Marion County

Ed S. Holman's No. 1 Henderson, R. Bennington Sur.
P.B. to 2,442 ft.

Panola County

George Hudson et al's No. 1 J. F. Nail, C. McGeary Sur.
Set 8-in. 40 ft.; fishing for core bbl. at 2,345 ft.

Geo. Le Grand's No. 1 P. J. Wardleigh, A. Thompson Sur.
Set 10-in. 62 ft.

R. W. Price's No. 1 Crawford, J. A. Williams Sur.
Set 10-in. 64 ft.

Fred Stovall Drlg. Co.'s No. 1 H. D. Ivey, P. Martin H.R.S.
S.D. for csg. 1,980 ft.

Shelby County

Cliff Stoval's No. 1 Pickering Lbr. Co., C. H. Patterson Sur.
S.D.; rig repair, 1,485 ft.

S. W. TEXAS WILDCATS

Week Ending December 21

Atascosa County

R. C. Lee's No. 1 Atascosa Trust, 160 ft S line, 300 ft. E line, 152-ac. lease, J. T. Russell Sur. No. 1,222.
T.D. 745 ft.; S.D.

Robert McIntyre No. 1 S. A. Joint Stock Land Bank, 1,104 ft. SW line, 3,700 ft. SE line, J. D. Woodruff Sur. 246 ft.
Drlg. 1,513 ft.

Bandera County

Plateau Oil Co.'s No. 1 Garrison, G.C.&S. F. Sur. No. 506, 1,500 ft. from W and 2,970 ft. from N lines of survey.
T.D. 5,365 ft.; dry and abd.

Bee County

Geo. W. Church's No. 1 Hearn, 2,000 ft. S No. 1 Wood.
Coring 5,162 ft.

Geo. M. Church's No. 1 Ray, 360 ft. E line 330 ft. N line, C 40-ac. tract, Anna Burk Sur.
T.D. 692 feet, S.D., drlg. water well.

LaSalle Pet. Corp. No. 1 Ray, 360 ft. E line, 330 ft. N line, 40-ac. tract, Anna Burk Sur.
Drlg. 1,051 ft.

G. M. Richardson No. 1 Mengers, center 500-ac. tract, Ryan estate, William Allen Sur.
Moving in material.

D. C. Smith's No. 1 Robertson, 150 ft. N and W lines, T. B. Barton Sur., Abst. 114. Sand 3,025-59 ft.; running tubing.

Rogers Oil & Gas Co. No. 1 Goree, 370 ft. E line, 1,385 ft. S line, Blk. 20, Tarver Henslee Subd., Toward ranch.
T.D. 4,001 ft.; dry and abd.

Bexar County

A. J. Byrne's No. 1 Newman, 330 ft., S and W lines lease, L. Munoz Survey No. 66.
Location.

Jas. B. Cunningham's No. 1 L. F. Ridder 950 ft. S of Nelson Road, 1,300 ft. from E line, Block 5,194, Sur. No. 58.
T.D. 880 ft.; standing.

J. Dupree No. 1 Coffey, Rodrigues Sur.
Running csg. 1,050 ft., blowing gas.

Morgan & Magna's No. 1 Kirkwood, Desaque Sur., 9 miles SW of San Antonio.
Location.

Bert Mewinkle's No. 1 Keiser, 434 ft. N line, 150 ft. W line, Leringville Sur.
No report.

H. B. Starkey's No. 1 McCloskey, 150 ft. W line, 1,525 ft. N line lease, Desague Sur.
T.D. 802 ft.; prep. to test.

Fred Thorman's No. 1 Saha, 330 ft. E line, 600 ft. S line of tract, Sur. No. 3.
Spudded in; waiting on rotary rig.

Brooks County

California Co. No. 1 B. Garcia, 465 ft. N and W lines lease, B. Garcia tract, Salinas Sur.
Drlg. 1,303 ft.

Dick Young No. 1 Singer, 50 ft. E line, 660 ft. N line, NW¼ SE¼, Sur. 312.
Location.

Caldwell County

P. M. Armstrong's No. 1 Dunlap, 300 ft. W Bob Rose No. 1 Pierce, Dunlap area.
Moving in material.

Detroit-Texas Co. No. 2-A Dunlap, 40 ft. NW of No. 3, Sanders Sur.
Skidding derrick.

J. Elam's No. 1 Brown, 450 ft. SE and SW lines of lease, Souvereign Sur.
Rigging up.

Ogden & Reed No. 1 Lackey, 100 ft. SE line, 150 ft. NE line, 193-ac. tract, Damon Sur.
Moving in material.

W. H. Jennings' No. 1 McMahan, 250 ft. SE and SW lines, 68-ac. tr.
No report.

M. R. Tinkle No. 1 Dunlap, 150 ft. SE line, 150 ft. road, Seale Sur.
Rigging up.

Cameron County

Joseph Anderson's No. 1 Browne, 330 ft. N line, Blk. 379, San Benito Subd., Espiritu Santo grant, 3 miles N Rio Hondo.
Standing 5,195 ft.

Kingwood & Daniels' No. 1 Port Isabel, Share 39.
Spudded in; S.D.

Dewitt County

Reginald F. Baurke's No. 1 W. C. Steinman Est., 937 ft. from N and S lines, Uriah Blue 1-3 League.
To resume drilling; T.D. 2,412 ft.

Universal Oil, Gas & Mining Co. No. 1 Schuebel, 330 ft. from S and W lines of tract, Fitzgerald grant.
No report.

Duval County

J. H. Chandler's No. 2 Rita Pena, Share 4, Mesquite grant.
Drlg. 2,023 ft.

Chas. Daubert No. 1 Kreis, 2,800 ft. N line, 2,700 ft. E line, Sur. 516.
Drlg. water well.

Frank Gravis No. 1 C. K. Gravis, 1,650 ft. SE line, 990 ft. SW line, Sur. 350.
Set sur. csg. 300 ft.; W.O.C.

Howard Pet. Co.'s No. 1 Ruiz, sec. 4.
Location.

Magnolia Pet. Co.'s No. 1 Milano Land & Garden Co., 330 ft. S and W lines, Sur. 85.
T.D. 3,711 ft.; dry and abd.

Magnolia Pet. Co.'s No. 1 Worden-Duval, 330 ft. N and W lines, Sec. 153.
T.D. 3,892 ft.; S.D. for water.

Plymouth Oil Co.'s No. 1 Cuellar, 330 ft. NW and NE lines, Sur. 122.
S.D.; T.D. 2,128 ft.

Rogers & Rogers No. 1 Sutherland, 330 ft. S and W lines, Sec. 120.
Drlg. 2,606 ft.

Santa Clara Oil Co.'s (Atkins & O'Neil) No. 1-A James F. Welder Heirs, 330 ft. SW cor. 640-ac. tr. lying W of sec. 525, in sec. 103.
Drlg. 1,921 ft.

Trinity Drillers, Inc.'s No. 1 Sweden ranch (Driscoll-Sevier), 330 ft. N and E lines, Sec. 49, Santa Rosalie grant.
Drlg. 2,550 ft.

Edwards County

Paul Tear' No. 1 Stewart, C SE¼, Sec. 3, G.C.&S.F. Sur.
Spudded in.

Frio County

W. D. Bacon's No. 1 Burns, 2,500 ft. S and W line, Thomas Clifton Sur.
S.D. 2,230 ft.

F. L. Thompson No. 1 La Batt, 3,085 ft. W line, 265 ft. N line, Uphus Sur. 169.
Location.

Goliad County

John W. Greer's No. 1 Pettus, Sebastiana Vela Sur.
Location.

Hendricks et al's No 1 Gillette, 330 ft. of NW and SW lines of tract, G. Gomez Sur.
Location.

Keystone Royalty Co.'s No. 3 M. Woods, 330 ft. S and E lines, SE¼ 160-ac. tract, Sec. 13, Josefa Rios Sur.
T.D. 6,702 ft.; abd.

Potter et al No. 1 Lutenbacher, 330 ft. N and W lines, Blk. 25, Goliad townsite.
Rigged up.

Thompson Drlg. Co.'s No. 1 Hays Taylor estate, 900 ft. SE line, 2,400 ft. W cor. 791-ac. tract, Smith Sur.
Show oil 5,003-18 ft.; running tubing.

Gonzales County

Tull et al No. 1 Boska, 800 ft. S and E lines lease, B. McClure Sur.
Location.

Guadalupe County

Paul Armstrong and J. E. Clark No. 1

Brodnoux, 150 ft. S and E lines, 36-ac. tract, W. P. King Sur.
No report.

Jim Harper's No. 1 Flucker, 220 ft. NE line, 150 ft. NW line of tract, Smith Sur. No. 15.
T.D. 2,200 ft.; S.D.

R. C. Robbins' No. 1 Manford, 1,200 ft. E line, 750 ft. S line, 100-ac. tr., Hodges ¾ league.
T.D. 1,140 ft.; S.D.

Hidalgo County

Gulf States Oil Co.'s No. 2 J. C. Engleman, 400 ft. S and E lines, Lot 3, Blk. 70, Las Mestanas grant.
Sidetracking 5,144 ft.

Gulf States Oil Co.'s No. 1 Delta Orchards, 550 ft. from N line, 400 ft. W line, Lot 2, Blk. 73, Las Westanas Grant.
Set surface csg. 700 ft.; W.O.C.

Kingwood Oil Co.'s No. 2 Osca Daskom, 723 ft. N line, 1,805 ft. E line, Blk. 30, Porc. 45, J. of Reynosa.
Set sur. csg. 650 ft.; W.O.C.

Maxwell's No. 1 Hidalgo Water Dist. No. 2, Lot 11, Blk. 20, Alamo Land & Sugar Co. Subd., Alamo tract, 10 miles SW McAllen.
T.D. 615 ft.; S.D.

Sloan et al's No. 1 Brock & Showers, 350 ft. S and W lines, Lot 9, Blk. 16, Por. 6?
T.D. 6,003 ft.; P.B. 4,660 ft.; tested salt water; S.D. for orders.

Dayle L. Smith Oil Co.'s No. 1 Fairbanks & Young, Blk. 44, Por. 46, Jurisdiction of Reynosa.
Drlg. shale 892 ft.

Jim Hogg County

French Oil Corp.'s No. 1 E. Rodriguez, Share M-1, partition, Las Cuevitas grant
Rigging up.

S. L. Miller Oil Co.'s No. 1 Yeager, 150 ft. E line, 477 ft. S line, Blk. 4, Sur. 20.
Cored sand 3,535-45 ft.; lost hole; sidetracking 2,430 ft.

P. H. Neilson, trustee's No. 1 de la Garza, 550 ft. E line, 600 ft. S line, Blk. 293, Pippin Subd., Randado grant.
Set csg. 610 ft.; W.O.C.

Rankins No. 1 Vela, Lot 6, Sur. 5.
Drlg. 1,013 ft.

Jim Wells County

Houston Oil Co.'s No. 1 Hawkins & Wallace, 990 ft. S and E lines, Blk. 11.
Moving in material.

Smith & Son No. 1 McGill, 660 ft. S No. 1 Dilworth.
P.B. 2,325 ft.; W.O.C.

Kendall County

H. W. Martin's No. 2 Edwin Houston, I.T.&N. Sur. 598.
Location.

Kerr County

Auld and Evans' No. 1 Heffner, 660 ft. N line, 330 ft. W line, Sec. 13, B.S.&F. Sur.
Drlg. (second hole) 800 ft.

Kleberg County

John Bartlett's No. 1 Anton Deitz, SE¼ NE¼ Sec. 48, K.T.&I. Subd.
Drlg. 2,021 ft.

Clarke No. 1 Kellam, 330 ft. S and W lines, Blk. 5, Sec. 53, K.T.&I. Sur.
Derrick.

Fidelity Oil Co.'s No. 1 Fiato, 150 ft. S and E lines, Blk. 14, Sec. 40, K.T.&I. Sur.
Location.

Fidelity Exp. Co.'s No. 1 Sam Michalk et al, 330 ft. from N line and 775 ft. from E line, Blk. 37, Sec. 5; 5 miles SE Kingsville.
T.D. 3,805 ft.; sidetracked and reaming down; drlg. 600 ft.

Gordon et al No. 1 Dietz, NE cor. Blk. 10, Sec. 54.
Coring dry sand 4,712 ft.

LaSalle County

Roy Shipman's No. 1 Coleman, 330 ft. SW cor. Blk. 15 Sur 514.
Dry and abd. 2,200 ft.

Lee County

J. Spivey's No. 1 First National Bank, 300 ft. S and E lines, 346-ac. tract, Mack Sur.
Location.

Live Oak County

E. H. Buchner's No. 1 McNeill, 300 ft. of SW cor. of 40-ac. tract, Blk. 6, McNeill Subd.
Location.

Earl Calloway's No. 1 Lyne, 895 ft. of W line, 330 ft. of N line, E¾ SW¼ of M. M. Lyne Sur.
No report.

Holland Oil Co. and Maraydun Oil Co. No. 1 Lyne, 1,195 ft. SE line, 5,955 ft. SW line, Sec. 74, Lyne Abst. 762.
S.D. 4,390 ft.

Ogden & Reed's No. 1 Reed, 330 ft. SW and NW lines, I.&G.N. R.R. Sur. No. 5.
Rigging up.

Santa Clara Oil Co.'s (Atkins & O'Neil) No. 1 Corbett, sec. 2, R. H. Corbett Sur.
S.D. for water.

L. W. Steiren No. 1 Smith, T. B. Reese Sur.
Location.

McMullen County

Aransas Oil Co.'s No. 1 Reed, 330 ft. E line, 1,320 ft. S line, Spicer Sur.
T.D. 1,460 ft.; S.D.

J. F. Camp, No. 1 Byrn estate, Benjamin Odem Sur.
T.D. 967 ft., S.D. for rains.

Darby Pet. Co. No. 3-B Hagist, 330 ft. S and E lines, SE¼ NW¼, Sur. 181.
S.D. for rain 2,005 ft.

C. O. Garney's No. 1 Hagist, 330 ft. N and W lines, SE¼, Sur. 6.
Location.

Reliance Oil & Royalty Co.'s No. 1 Shiner, 330 ft. NE cor. Sec. 29, C. C. Shumway Subvd.
Drlg. 1,532 ft.

Stewart et al's No. 1 G. Lowe, 2,000 ft. W line, 2,400 ft. S line, Geo. Bright Sur. No. 21.
T.D. 2,249 ft.; S.D.

S. Teichman No. 1 Henry, Torres Sur. No. 20.
Standing 374 ft.

Medina County

F. Brown's No. 1 Brucks, 900 ft. W line, 660 ft. S line, Brucks tract, John Ward Sur. No. 18.
Standing 560 ft.

Frank Brown's No. 2 Winn, 600 ft. W line, 300 ft. N line, Ward Sur.
Spudded in; S.D.

Joe Dupree's No. 1 Brucks, 494 ft. N line, 165 ft. E line, Castro Sur. No. 348.
S.D. 750 ft.

W. C. Campbell's No. 1 McMenemy, 150 ft. S and W lines, Sur. 33.
Drlg. 1,457 ft.

Gates & Hills' No. 3-B Odem, Castro Sur. No. 174.
Standing; T.D. 465 ft.

Letro Oil Corp.'s No. 1 E. B. Forrest, 1,928 ft. from N line, 1,908 ft. from E line of 640-ac. tract, Blk. 69.
Running csg. 800 ft.

Nueces County

Bluff Pet. Co.'s No. 1 Bluntzer, 330 ft. SW and SE lines, NE 1,007-ac. tract, Sec. 4, Casa Blanco grant.
T.D. 4,219 ft.; S.D. for fuel.

T. Graham No. 1 Donnigan, 40-ac. tract, Sec. 7.
Spudded in.

A. E. Masterson's No. 1 Eschberger, 330 ft. S and W lines, N½ NE¼ Sec. 37, Pauls Subd., Driscoll ranch.
Drlg. 3,447 ft.

La Jita Corp.'s No. 1 King, C SE¼ SW¼ Sec. 22.
Perforated 5,046-60 ft.; testing.

H. A. Meyer's No. 1 Harney, 850 ft. W line, 225 ft. S line, 3,200-ac. tract.
Location.

Sherman Nelson No. 1 Buckholt, 990 ft. E line, 150 ft. S line, S 114.8-ac. tract, Blk. 316.
Perforating 3,176 ft.

San Patricio County

George E. Smith's No. 1 Britton, 330 ft. N and W lines, Lot 8, Sec. 4
Comp.; I.P. 425 bbls. per hour on ¼-in. choke; sand 4,872-4,906 ft.

Stanolind Oil & Gas Co.'s No. 1 Alamo Iron Works, 1,280 ft. N line, 330 ft. E line, Blk. 17, Fitzsimmons league.
Drlg. salt water sand 4,225 ft.

Starr County

O. C. Borah No. 1 Virginia C. de Guerra, 3,500 ft. N line, 2,000 ft. E line, Share 92, Por. 68, Jurisdiction of Mier.
Spudded and S.D.

J. H. Clopton's No. 2 Bass, 2,460 ft. E line, Por. 87, 17,469 ft. W of Highway No. 4, Por. 87.
Drlg. 857 ft.

John Clopton No. 2 Roos & Bennett, 6,-252 ft. S, M.P. Ry., 3,000 ft. E line, Share 1-A, Por. 92, Jurisdiction of Camargo.
Drlg. 2,442 ft.

Cook-Maris Arnold's No. 1 S.C.C.C., 220 ft. N line, 25 ft. E line, Lot 24, Por. 89.
Drlg. 2,205 ft.

Corsta Oil Co. No. 1 Haden et al, Share 47, Por. 80, Jurisdiction of Camargo.
No report.

H. C. Harter No. 2 Sanchez, 739 ft. N line, 1,112 ft. W line, Share 69, Por. 72, Jurisdiction of Mier.
Moving in Material.

Mark Jenkins No. 1 Garza, 5,130 ft. N line, 1,320 ft. W line, Share 26, Por. 70, Jurisdiction of Mier.
Drlg. rock 203 ft.

McCurry & Yates' No. 1 S.C.C.C., 150 ft. W line, 510 ft. N line, Blk. 58, Porc. 89.
Location.

McCurry & Yates' No. 2 S.C.C.C., 150 ft. E line, 510 ft. N line, Blk. 58, Porc. 89.
Location.

Pedernal Oil Co.'s No. 1 Hicks et al, 187 ft. from NW line, 318 ft. from NE line of Blk. 6, Pedernal Grant.
T.D. 2,210 ft.; S.D.

Hiram M. Reed's No. 1 S.C.C.C., 885 ft. W line, 150 ft. N line, Blk. 66, Jefferies-Lambeth Subd., Porc. 89.
Perforated 2,511-32 ft.; flowing est. 10 bbls. per hour, fluid mostly salt water; T.P. 600 lbs.

A. J. Uleyel No. 1 Wood, 2,500 ft. N Rio Grande River, 2,500 ft. E line, Por. 54.
Location.

Webb County

Austin & Vernon's No. 1 Jeffries, 150 ft. NE line, 1,170 ft. SE line, Blk. 13, Sur 1 463.
Drlg. 412 ft.

California Co. and Mills Bennett Prod. Co. No. 1 Billings, 1,500 ft. E line, 2,600 ft. S line, Sur. 45.
Coring sand 1,577 ft.

Clopton & Doffing's No. 1 Sistor, center Blk. 29, Borrego grant.
Fishing 2,625 ft.

O. W. Killam No. 1 Ortiz, 200 ft. SE line, 3,350 ft. S.W. road, Porc. 17.
T.D. 1,951 ft.; dry and abd.

O. W. Killam No. 2 Ortiz, 660 ft. S line, 1,500 ft. E line, Sur. 1,805.
Location.

O. W. Killam No. 1-A Ortiz, 50 ft. N No. 1 Ortiz.
Drlg. 211 ft.

Magnolia Pet. Co.'s No. 1 Garcia-Arriba, 330 ft. S and E lines, Blk. 8, Albercas grant.
Coring 4,907 ft.

J. E. Neal No. 1 Laurel Bros., 1,320 ft. S and E lines, Sur. 119.
Drlg. 4,927 ft.

Payne & Martinez's No. 1 Ferry, 150 ft. NE and NW lines, Sur. 177.
Drlg. 4,825 ft.

Arthur H. Wray's No. 1 Geo. Stuempge, Share 1, Brewster pasture, Galan grant Rebldg. derrick pulled in while fishing.

S. S. & B. Oil Co.'s No. 6 Lone Star Co., 7,700 ft. NE line, 330 ft. SE line, Por. 13.
S.D. for orders; T.D. 659 ft.

Willacy County

Kingwood Oil Co.'s No. 1 Santa Rosa, Inc., 160 ft. from E line, 637 ft. from S line of Sec. 30, Blk. 16, Share 44, San Juan de Carricitas grant.
P.B. 4,900 ft.; to perforate 4,858-87 ft.

Zavalla County

Buttram Pet. Co. No. 1 White Cotton, 2,-340 ft. W line, 330 ft. N line, A.B.&M. Sur. No. 1.
Derrick.

Leona Oil Co. and Witherspoon Oil Co. No. 1 George West, 3,665 ft. N line, 330 ft. E line, C. Bustillo Sur. No. 1.
Location.

Zapata County

Murt Cullinan's No. 1 Gutierrez, Blk. 4, Share 2, Fansler Partition, Comitas Grant.
Drlg. 914 ft.

J. W. Magee No. 1 Bruni, 330 ft. NE and SE lines, Blk. 45, Blas Uribe grant.
Drlg. 221 ft.

J. J. O'Hern's No. 1 Raymond, 330 ft. NW line, 330 ft. NE line, Blk. 5, Share E, Por. 27.
Fishing 2,220 ft.

S. W. TEXAS PROVEN

Week Ending December 21

Caesar—Bee County

Caesar Oil Co.'s No. 6 R. E. Miller, N offset to Commoder's No. 4 Grissom.
Location.

Luling O. & G. Co. No. 2-B Hudman, 660 ft. SE No. 1-B, 496.4-ac. tract, Chas. Baker Sur.
Top sand 3,081 ft.; comp.; no gauge.

Sun Oil Co.'s No. 1 Barroum, 990 ft. N line, 330 ft. E line lease.
Moving in rig.

Dirks—Bee County

Devonian Oil Co. No. 1 Young, 660 ft. W Home No. 8 Bassinger, 330 ft. E line, M. O. O'Brien Sur.
Derrick.

Illinois Pet. Co. No. 2 Imogene Hall, T. J. Butler Sur.
Sand 3,912-25 ft.; comp. 5 bbls. per hour; C.P. 450 lbs.

Illinois Pet. Co.'s No. 2 Rapp, 330 ft. N line, 66-ac. tract, 660 ft. W No. 1 Rapp, C. A. Dugat Sur.
Moving in material.

Illinois Oil Co. No. 3 Hall, 1,710 ft. SE line, 330 ft. SW line tract, Butler Sur.
Drlg. 523 ft.

Illinois Pet. Co.'s No. 3 Rapp, 330 ft. N line 66-ac. tract, 660 ft. W No. 2 Rapp, C. A. Dugat Sur.
Location.

Texas Co. No. 9 Young, J. Butler Sur.
Drlg. 2,019 ft.

Texas Co. No. 13 Young, 580 ft. NE No. 11, T. J. Butler Sur., Abst. No. 411.
Sand 2,961-42 ft.; tested salt water; P.B. to 3,928 ft.; swabbed dry.

Ray—Bee County

Duncan & Perkins No. 2-B Campbell, W. B. Blanchard Sur.
Sand 3,959-63 ft.; drlg. plugs.

Simms Oil Co. No. 7 Ray, 660 ft. S No. 5, W. B. Blanchard Sur.
Set csg. 3,944 ft.; W.O.C.

Simms Oil Co. No. 8 Ray, 660 ft. S No. 5 Ray, W. B. Blanchard Sur., Abst. 133.
No report.

Simms Oil Co.'s No. 1-B Campbell, 150 ft. S and E lines, Lot 19, Bucher Subd., W. B. Blanchard Sur.
Location.

Sun Oil Co.'s No. 2 Ray, 660 ft. W No. 2 Ray.
Rigged up.

R. J. Worthington's No. 1 Chestnut, 330 ft. NW cor. 40-ac. tract, B. O. Hadley Sur.
Spudded in; S.D.

Rutledge—Bee County

Worth Oil Co.'s No. 4 Rutledge, 660 ft. S No. 2 Rutledge, Hadley Sur.
Location.

Tuleta—Bee County

Highland Oil Co.'s No. 4 Campbell, 40-ac tract, B.&B. Sur.
Spudded in.

Gas Ridge—Bexar County

American Gas Co. No. 5 Oliver, Rodrigues Sur.
No report.

Von Ormy—Bexar County

Joe Dupree No. 1 Russell, 1,500 ft. SE No. 1 Coffey.
Spudded in.

R. Ingersoll No. 1 Munn, 180 ft. S line, 200 ft. E line of Survey.
Drlg. 321 ft.

Morosis No. 1 Cole, Rolen League, Sur. 48, T.D. 698 ft.; bailing 2 bbls. daily.

B. Shadrock's No. 5 Barragan, 150 ft. S and E lines, tract.
Rigging up.

F. H. Shaver No. 2 Bitter, 300 ft. NE No. 1, Baerrera Sur.
Moving in material.

Salt Flat—Caldwell County

Dawn Oil Co. No. 1 Tiller, 37½-ac. tract.
Location.

Government Wells Pool—Duval County

Tom Graham No. 3 Webb, 330 ft. E line, 1,320 ft. N line, 63½-ac. tract, Sur. 41.
Rigging up.

Magnolia Pet. Co. No. 5 Bryan White, 330 ft. S and E lines, NE¼ NE¼ Sur. 64.
Drlg. 1,720 ft.

Magnolia Pet. Co. No. 6 Bryan White, NE¼ NE¼ Sur. 64.
Location.

Magnolia Pet. Co.'s No. 9 Johnson, center ¼, E½, Sur. 44.
Comp. pumping 20 bbls. per day; T.D. 2,317 ft.

Hoffman—Duval County

Argo Oil & Royalty Co. No. 1 Smith-Corkill, N½, Sur. 61.
Location.

Kohler—Duval County

California Co. No. 2 Grury, 990 ft. N and E lines, Sur. 157.
Coring salt water sand 4,581 ft.

Loma Novia—Duval County

Bridwell Oil Co. No. 4 B.C.C., NW¼, S½, Sur. 76.
Comp.; est. 20 bbls. per hour; sand 2,-667-87 ft.

Bridwell Oil Co. No. 3 Pennia, Blk. 7, Sur. 78.
Set csg. 2,670 ft.; W.O.C.

Bridwell Oil Co. No. 2 Pennia, Blk. 7, Sur. 78.
Drlg. 1,060 ft.

Buchanan & Blanco Oil Co.'s No. 1-B Ruiz, 185 ft. N line, 1,650 ft. E line, Sur. 73.
Location.

Rodney DeLange No. 4 B.C.C., SE¼, SE¼, Sur. 76.
Comp. 21 bbls. per hour, ½-in. choke; sand 2,659-81 ft.

Rodney DeLange No. 5 B.C.C., Sur. 76.
Skidding derrick.

Duval Oil Corp. No. 3 Hahl, 330 ft. N line, 255 ft. E line, Sur. 78.
Top sand 2,624 ft.; comp. 27 bbls. per hour on ⅝-in. choke.

Duval Oil Corp. No. 6-B Moody, 990 ft. W line, 330 ft. S line, S½ NW¼, Sur. 76.
Set csg. 2,577 ft.; W.O.C.

Duval Oil Corp. No. 9-B Moody, 330 ft. N and E lines, SE¼ Sec. 60.
Moving in material.

Gilcrease Oil Co. No. 2 McLean, SW¼, Sur. 62.
Location.

Gravis & Gilcrease Oil Co. No. 3 Byland, Blk. 4, Sur. 78.
W.O. pump 2,614 ft.

C. Hamill No. 2-B Hahl, 330 ft. S and W lines tract, Sur. 78.
Comp. 46 bbls. per hour; T.D. 2,611 ft.

C. Hamill (J. I. Newton) No. 1-D Hahl, 330 ft. N and E lines, N½, NW¼ Sur. 76.
Running liner; T.D. 2,629 ft.

C. Hamill No. 3-C Hahl, Sec. 63.
Location.

C. Hamill No. 4-C Hahl, Sec. 63.
Location.

C. Hamill No. 4-D Hahl, Sur. 76.
Drlg. 1,009 ft.

C. Hamill No. 4-D Hahl, Sec. 76.
Drlg. 1,021 ft.

C. Hamill No. 8-C Hahl, 990 ft. S and E lines, Sec. 63.
Drlg. 2,014 ft.

Hamill, Smith & Ogden's No. 13 Hubbard, 330 ft. N and E lines, NE¼, SE¼, Sec. 77.
Derrick.

Hamill, Smith & Ogden's No. 14 Hubbard, 330 ft. S and E lines, NE¼, SE¼, Sec. 77.
Location.

Hamill, Smith & Ogden No. 30 Hubbard, 330 ft. SE cor. NE¼ SW¼ Sur. 77.
Comp. 15 bbls. per hour; open tubing; no pressure.

Hamill, Smith & Ogden No. 31 Hubbard, 330 ft. NE cor. SE¼ SW¼, Sur. 77.
Skidding derrick.

Hamill, Smith & Ogden's No. 32 Hubbard, 330 ft. SE cor. SE¼ SW¼ Sur. 77.
Location.

Highland Oil Co. No. 2 B.C.C., Sec. 76.
Comp. 20 bbls. per hour on ⅛-in. choke; sand 2,594-2,600 ft.

Highland Oil Co. No. 3 B.C.C., Sec. 76.
Drlg. 2,109 ft.

Highland Oil Co. No. 4 B.C.C., Sec. 76.
Location.

Highland Oil Co. No. 5 Hubbard, 2,970 ft. N line, 330 ft. W line, W½ Sur. 72.
Rigging up.
Location.

Highland Oil Co. No. 6 Hubbard, Sur. 72.
Derrick.

Humble O. & R. Co. No. 5-C Welder, 1,320 ft. S and W lines lease, Sur. 554.
Sand 2,702-03 ft.; sandy shale 2,703-07 ft.; comp. 9½ bbls. per hour.

Humble O. & R. Co. No. 6-C Welder, 2,-110 ft. W line, 2,263 ft. S line, Sec. 554.
Drlg. 1,515 ft.

Humble O. & R. Co. No. 5-A Hubbard, 330 ft. N and E lines, Sur. 84.
Set csg. 2,815 ft.; W.O.C.

Humble O. & R. Co. No. 1-B Hubbard, E½, Sur. 72.
Location.
Montour Prod. Co. (Lipscomb & Daubert) No. 3 Hubbard, 330 ft. S and E lines, S½, NE¼, Sur. 75.
Rigging up.
Reynosa Oil Co. No. 1-A Mary Davison, Sur. 114.
Rigging up.
Rosan Oil Co. No. 5 Hubbard, 330 ft. S and W lines, Sur. 84.
Drlg. 1,431 ft.
Russ Pet. Co. No. 3 B.C.C., Sur. 76.
Drlg. 2,113 ft.
Shell Pet. Corp. No. 24 Hubbard, E½ Sur. 77.
Derrick.
Shell Pet. Corp. No. 25 Hubbard, E½ Sur. 77.
Derrick.
Magnolia Pet. Co. No. 13 Hahl, Sur. 67.
Location.
Magnolia Pet. Co. No. 13 Hahl, 640-ac. tract, Sur. 67.
Location.
Reynosa Oil Co. No. 2-B Mary Davison, 990 ft. S and E lines, Sur. 114.
Location.
Reynosa Oil Co. No. 4 M. Davison, Sur. 114.
Comp. 34 bbls. per hour on ½-in. choke; sand 2,555-60 ft.
Rosan Oil Co. No. 5 M. C. Hubbard, SW¼, Sec. 84.
Location.
Rosen Oil Co. No. 4 Hubbard, E½, Sur. 71
Sand 2,772-93 ft.; comp. 13 bbls. per hour on ½-in. choke; T.P. 150 lbs.
Russ Pet. Co. No. 2 B.C.C., SW¼ SW¼, Sur. 76.
Comp.; no gauge; T.D. 2,600 ft.
Russ Pet. Co.'s No. 1 Duke, 330 ft. N and W lines, 40-ac. tract, Sec. 64, J. Poitevent Sur.
Location.
Shell Pet. Corp. No. 2 Hahl, 330 ft. S and E lines lease, Sur. 78.
Comp. swabbing 10.7 bbls. per hour; T.D. 2,597 ft.
Shell Pet. Corp. No. 17 Hubbard, 1,619 ft. W line, 330 ft. N line, E½, Sur. 77.
Set csg. 2,729 ft.; W.O.C.
Shell Pet. Corp. No. 18 Hubbard, 330 ft. N and E lines, E½ Sur. 77.
Drlg. shale 1,058 ft.
Shell Pet. Corp. No. 19 Hubbard, E½ Sur. 77.
Comp. 240 bbls. per day; sand 2,760-88 ft.
Texas Co. No. 12 Vela, 4,290 ft. E line, 330 ft. S line, Sur. 42.
Tested 5,000,000 ft. gas 2,614 ft.; comp. 2,605-10 ft.
Texas Co. No. 13 Vela, 330 ft. S line, 990 ft. W line, S½, Sur. 42.
Sand 2,578-91 ft.; completing.
Texas Co. No. 14 Vela, S½, Sur. 42.
Location.
Texas Co. No. 18 Vela, Sur. 42.
Rigging up.
Texas Co. No. 5 Wendt, 660 ft. W No. 3, 330 ft. N line, Sec. 68.
Comp. 18 bbls. per hour; sand 2,605-20 ft.
Texas Co. No. 6 Wendt, 660 ft. W No. 5, 330 ft. N line, Sec. 68.
Drlg. 321 ft.
Texas No. No. 13 Wendt, 330 ft. S line, 3,630 ft. W line, 458-ac. tract, Sec. 68.
Comp. 50 bbls. per day; T.D. 2,731 ft.
Texas Co. No. 14 Wendt, 330 ft. S line, 4,290 ft. W line, 458-ac. tract, Sec. 68.
Drlg. sand 275 ft.
Texas Co. No. 15 Wendt, 330 ft. S line, 4,950 ft. W line, 458-ac. tract, Sec. 68.
Location.

Piedra Lumbre—Duval County

Magnolia Pet. Co. No. 3 D.C.R.C., 330 ft. S line, 990 ft. E line, Sur. 100.
Location.

Sarnosa—Duval County

Magnolia Pet. Co. No. 1 D.C.R.C., Sur. 573.
T.D. 2,634 ft.; S.D. for water.

Seven Sisters—Duval County

Atlantic Oil Prod. Co. No. 4-B Welder, 330 ft. S and W lines, S½ SE¼, Sur. 385.
Set csg. 2,528 ft.; W.O.C.
Atlantic Oil Prod. Co. No. 5-A Welder, 990 ft. W line, 330 ft. N line, NE¼ Sur. 385.
Comp. 125.9 bbls. in 12 hours on ¼-in. choke; T.D. 2,528½ ft.; T.P. 100 lbs.; C.P. 360 lbs.
Atlantic O. P. Co. No. 6-A Welder, 1,650 ft. N line, 990 ft. W line, NE¼, Sur. 385.
Moving in material.
Atlantic O. P. Co. No. 7-A Welder, 2,310 ft. N line, 990 ft. W line, NE¼, Sur. 385.
Location.
Atlantic O. P. Co. No. 1-C Welder, 330 ft. N and E lines, NW¼, Sec. 591.
Location.
Buchanan & Blanco Oil Co. No. 5 Wood-Welder, 1,650 ft. N line, 330 ft. E line, 82.1-ac. tract, sec. 385.
Set csg. on sand; drlg. plugs.
Buchanan & Blanco Oil Co. No. 6 Wood-Welder, 330 ft. S and E lines, E½ SW¼, Sur. 385.
Clearing location.
George Coates No. 1 P. L. Telford, 330 ft. N and W lines, Sur. 386.
Moving in material.
Diamond Half Oil Co. No. 1 R. Serna, 330 ft. N and W lines, N½ NE¼, Sur. 384.
Sand 2,202-20 ft.; tested little oil; to core deeper.
Humble O. & R. Co. No. 3-A Serna, 330 ft. N and W lines, SW¼, Sur. 384.
Rigging up.
Humble O. & R. Co. No. 2-B Serna, 330 ft. S and E lines, Sur. 384.
Comp. in deeper sand 17 bbls. per hour on ¼-in. choke.
Mid-Continent Pet. Corp. No. 4 Serna, 990 ft. E line, 2,080 ft. N line, Sur. 382.
Set csg. 2,470 ft.; W.O.C.; T.D. 2,480 ft.
Navarro Oil Co. No. 1 J. F. Welder, 330 ft. E line, 2,970 ft. N line, Sur. 383.
Location.
Santa Clara Oil Co. (Atkins & O'Neil). No. 7 Wood-Welder, 990 ft. N line, 1,320 ft. E line, NW¼, Sur. 385.
Coring 2,487 ft.
Santa Clara Oil Co. and H. H. Henderson No. 4-C Welder, NE 160-ac. tract, Sur. 383.
Set sur. csg.; W.O.C. 48 ft.
Shell Pet. Corp. No. 2 Welder, 990 ft. N line, 330 ft. E line, W½, SW¼, Sur. 385.
Resumed coring 2,250 ft.
Westheimer & Daube No. 2 Z. Campos, 330 ft. N and E lines, Sur. 224.
Spudding in.

Pearsall—Frio County

Amerada Pet. Co. No. 1 Michael, 1,400 ft. N line, 466 ft. W line, Alexander Lynch Sur. 321.
Drlg. 4,323 ft.
T. Davis No. 1 Halff & Oppenheimer, 320-ac. tract, J. D. Clare Sur. 336½.
Location.

Hords Creek—Goliad County

Brown & Wheeler No. 1-F Kaufman, 330 ft. NE and SE lines, Blk. 1, Trevino Sur.
Moving in material.
M. I. Richardson's No. 1 Kaufan, 330 ft. NW and SW lines, 40-ac. tr.
Location.
Sun Oil Co.'s No. 1 Kaufman, 990 ft. SE line, 330 ft. SW line lease, Trevino Sur.
Location.

Southwest Darst Creek—Guadalupe

Doody Oil Co.'s No. 2 Katy Lay, 150 ft. N line, 343 ft. E No. 1, J. K. Davis Sur.
T.D. 2,555 ft.; comp.; no gauge.
Stegal & Gallagher's No. 2 Lay, 20-ac. tr., Davis Sur.
Set csg. 2,333 ft.; drlg. plugs.

Mercedes—Hidalgo County

Union Sulphur Co. No. 1 American Rio Grande L. & L. Co., 400 ft. N and E lines, Lot 229, Blk. 59.
Pulling liner and screen (rework).
Union Sulphur Co.'s No. 5 American Rio Grande L. & L. Co., 230 ft. N line, 350 ft. W line, Tract 5 [illegible]
Sand 7,488-7,506 ft.; set liner; swabbing oil.

Samfordyce—Hidalgo County

J. H. Anderson's No. 1 Guerra, 332 ft. N line, 285 ft. W line, Tract 254, Por. 39.
Location.
Weekly Oil Corp.'s (Cortez) No. 3-C Smith, 330 ft. from N line, 690 ft. from W line of NE 40 acres of Tract B-3, Porcion 41.
Location.
Weekly Oil Corp.'s (Cortez) No. 3-C Smith, 330 ft. from N line, 1,150 ft. from W line of NE 40 acres of Tract B-3, Porcion 41.
Location.
Ralph E. Fair, Inc.'s (Kingwood) No. 4 Guerra, 165 ft. S line, 1,150 ft. E line Share 12, Por. 41.
Location.
Harrison, Davis & Bishop's No. 1 Guerra, 330 ft. S line, 616 ft. W line, S 40-ac., Tract 12, Por. 41.
M.I.M.
Harrison-Davis-Bishop's No. 7 Guerra, 330 ft. N line, 623 ft. E line, 40-ac. tract Tract 12, Por. 41.
Upper sand 2,708-44 ft.; cored saturated sand 2,744-55 ft.; coring 2,757 ft.
Harrison-Davis-Bishop's No. 8 Guerra, 330 ft. N line, 1,023 ft. E line, 40-ac. tract, Tract 12, Por. 41.
Location.
Harrison-Davis-Bishop's No. 9 Guerra, 330 ft. N and W lines, 40-ac. tract, Tract 12, Por. 41.
Location.
W. F. Lacy No. 1 Felipe Farias heirs, W 10-ac. tract, Tract 255, Por. 39.
Tentative location.
W. F. Lacey's No. 1 Lula George, 75 ft. S and W lines, 5-ac. tract, Tract 13, Por. 41.
Location.
W. F. Lacey's No. 2 Lula George, 75 ft. S and W lines, 10-ac. tract, Tract 13, Por. 41.
Location.
W. F. Lacey's No. 3 Lula George, 75 ft. S line, 550 ft. W line, 10-ac. tract, Tract 13, Por. 41.
Location.
Navarro Oil Co. No. 1 Francisco Guerra, 330 ft. S and E lines, 20-ac. tract, Tract 12, Por. 41.
Drlg. shale 2,557 ft.
Weekly Oil Corp. No. 3 F. Guerra, 330 ft. N and E lines, 20-ac. lease, Tract 12, Porc. 41.
Drlg. shale 1,021 ft.

Sandia—Jim Wells County

J. E. Walsh No. 1 Wade, 700 ft. N line, 330 ft. E line, Lot 3, Blk. C, Lopez de Jean Grant.
Set csg. 2,810 ft.; W.O.C.

Kingsville—Kleberg County

Fidelity & Culbertson Exploration Co.'s No. 2 Henry, Lot 2, Blk. 49.
Location.

Fort Merrill—Live Oak County

Slick-Urschel Oil Co.'s No. 1 Watson & Shipp, 330 ft. NE line, 990 ft. SE line lease, offset Mills Bennett's No. 1 discovery well.
Top sand 4,646 ft.; testing.

McNeill—Live Oak County

Benco Oil Corp.'s No. 1 E. Mahoney, 155 ft. from NW line of J. H. Harvey tract, 3,109 ft. SW of highway in Mark Killelly Sur.
S.D. 78 ft.
Luray Oil Co.'s No. 1 Little, NE offset, Whittington's No. 2 Little, M. M. Shipp Sur.
Top Yegua 5,147 ft.; show gas; S.D. for orders.
J. O. Whittington's No. 4 Little, 990 ft. S and E lines, Shipp Sur.
Location.

Calliham—McMullen County

Luray Oil Co. No. 1 Garner, 150 ft. S Frio River, Jas. Garner Tract.
Location.

Jacob Pool—McMullen County

Loma Oil Co. No. 43-A Jacob, 2,080 ft. S. 1,540 ft. W line, 640-ac. lease, Jacob Sur. 9.
S.D. for fuel oil; T.D. 630 ft.
Chas. Weist's No. 1 Lark, 150 ft. S and W lines, NW¼, Sec. 114.
Sand 1,032-27 ft.; drlg. plugs.

Baldwin—Nueces County

Houston Oil Co.'s No. 4 Baldwin, 330 ft. N and E lines 425-ac. tract, B.S.&F. Sur. No. 165.
Location.
Magnolia Pet. Co. No. 5 Baldwin, 1,005-ac. tract, Sur. 165.
Location.

Clara Driscoll—Nueces County

Santa Clara Oil Co. (Atkins & O'Neil) No. 2 Driscoll, 4,456.2 ft. N line, 1,650 ft. E line, Wm. Gamble Sur.
S.D. of repairs 3,640 ft.

Saxet Heights—Nueces County

Benson Drlg. Co. No. 1 Phillips, 3.6-ac. tract.
Drlg. 3,221 ft.
J. K. Culton No. 1 Margaret Whelan, 330 ft. S line, 330 ft. E line, 22-ac. tract, Villareal Sur.
Comp. 528 bbls. per day on 5/16-in. choke; T.D. 4,095 ft.
Republic Natural Gas Co. No. 1 Baldwin, 1,123 ft. S line, 330 ft. W line, Blk. 20, Russell Farm Tracts.
Digging pits.
W. A. R. Oil Co. No. 1 Kruz, 330 ft. E line, 225 ft. S line, 6-ac. tract, Villareal Sur.
Drlg. 3,643 ft.

Saxet—Nueces County

Benson & Cargray No. 1 Clarkewood townsite, Blk. 1.
Derrick.
Conservative Oil Co.'s No. 2 K. Hutchins, 330 ft. S line, 430 ft. W line, Blk. 29.
Coring 2,694 ft.
Tom Graham No. 1 Flato, 330 ft. S and E lines, 30-ac. tract, Blk. 14, Sheppard Farm Lots.
Moving in material.
Tom Graham's No. 1 Sam Kaler, 150 ft. S and E lines, 10-ac. tract, Villareal Sur.
Location.
Houston Oil Co.'s No. 5 Walton, 330 ft. NE line, 542.28-ac. tr., Villareal Survey.
Location.
Houston Oil Co.'s No. 7 Morgan, 330 ft. N and W lines, 494.8-ac. tr., Sec. 7.
Location.
Houston Oil Co.'s No. 8 Morgan, 330 ft. N line, 967 ft. W line, 494.8-ac. tr., sec. 7.
Location.
Houston Oil Co.'s No. 3 Harrell, 330 ft. N and E lines, Block 19, Sheppard Farm Lots.
Comp.; no gauge; T.D. 4,868 ft.
Houston Oil Co.'s No. 3 Hunter, 330 ft. S and W lines, 159.87-ac. tr., Sur. 586.
Location.
Magnolia Pet. Co.'s No. 2 Sanders, 330 ft. SW cor. 110-ac. tract, Sec. 165, B.S.&F. Sur.
Derrick.
Republic Natural Gas Co. No. 12 Dunn, 360 ft. N line, 670 ft. NE No. 11, Villareal Sur
Drlg. 1,215 ft.
Southern Minerals Corp. No. 2-A Isensee, 658 ft. E line, 116 ft. S line, 17-ac. tract, C. Land Sur., Abst. 975.
Sand 4,385-4,403 ft.; comp. 27 bbls. per hour; T.P. 500 lbs.; C.P. 1,145 lbs.
Southern Minerals Corp. No. 3-A Isensee, 17-ac. tract, C. Land Sur., Abst. 975.
T.D. 4,405 ft.; cleaning; no gauge; T.P. 500 lbs.
Southern Minerals Corp.'s No. 2 Sally Page, 330 ft. S and E lines, 75-ac. tract, Sur. 586
Sand 4,855-70 ft.; comp.; no gauge.
Texon Royalty Co.'s No. 1 Taggert, 330 ft. N and E lines, Block 5, Sur. 401.
P.B. to 2,200 ft. to complete as gasser.
Texan Royalty & Lucey No. 3 Isensee, 660 ft. W, 140 ft. S lines, Blk. 21, Sheppard farm lots.
Set csg. 4,394 ft.; flowing in pits through ¼-in. choke; C.P. 200 lbs.; T.P. 500 lbs.

Plymouth—San Patricio County

Conroe Drlg. Co.'s No. 3 D. Welder, sec. 47.
Testing 5,934 ft.
Conroe Drlg. Co. No. 1-G Welder, 466 ft. E line, 10 ft. S line, Sec. 47.
Cored sand 5,670-75 ft.; prep. to test.
Heep Oil Corp. No. 11-E Welder, sec. 46.
Drlg. 4,614 ft.
Magnolia Pet. Co. No. 5 Corpus Christi Bank, 1,349.7-ac. tract, H. Hunter Sur.
Drlg. sandy shale 2,087 ft.
Plymouth Oil Co.'s No. 24-C Welder, 938 ft. W line, 5,893 ft. S line, Sec. 71.
Set csg. 5,470 ft.; W.O.C.
Plymouth Oil Co. No. 25-C Welder, 3,016 ft. S line, 1,100 ft. W line, Sec. 71.
Fishing 4,192 ft.
Plymouth Oil Co. No. 26-C Welder, 1,363.7 ft. W line, 2,911.7 ft. S line, sec. 71.
Drlg. 3,611 ft.
Plymouth Oil Co. No. 27-C Welder, 4,797 ft. S line, 1,071 ft. W line, Sec. 71.
Moving in material.
Plymouth Oil Co. No. 28-C Welder, 216 ft. S line, 2,325 ft. W line, Sec. 49.
Location.
Sun Oil Co. No. 3 Hunt, 466 ft. N and E lines lease, Blk. 34, Lot 5.
Set csg. 5,614 ft.; drlg. plugs.
Sun Oil Co. No. 1 Edgar, 330 ft. N and W lines, Blk. 1, Sec. 34.
Drlg. 381 ft.
Sun Oil Co. No. 2 Edgar, 330 ft. S and W lines, Blk. 1, sec. 34.
Rigging up.

Barbacoas—Starr County

T. E. Irwin et al's No. 1 S.C.C.C., 150 ft. S and W lines, Blk. 58, Por. 89.
T.D. 2,320 ft.; abd.

Guerra—Starr County

Sun Oil Co. No. 3-B M. Guerra & Sons 1,980 ft. N, 800 ft. W No. 6-B, Las Cueritas Sur.
Coring 2,123 ft.

Rio Grande City—Starr County

John Clopton No. 1 Domingo Garcia, Blk. 1, Share 37-A, Por. 80.
Rigging up.
Fech Oil Co. No. 4 Frank Dayne, Blk. 4, Tract 77-A, Porc. 81.
Rigged up.

Samfordyce—Starr County

Phillips Pet. Co. No. 1 Garcia Land & Cattle Co., 330 ft. E line, 304 ft. S line lease, W½ Por. 100.
Gas sand 2,802-10 ft.; shale 2,810-12 ft.; set csg. 2,812 ft.; W.O.C.
Porter & Pickens' No. 2-B Garcia Land & Cattle Co., 330 ft. N and W lines, 60-ac. tract, NW cor. Blk. 4, Por. 100.
Location.
Porter & Pickens No. 3-A Garcia Land & Cattle Co., on line between Blks. 4 and 5, Por. 100.
Cored saturated sand 2,808-12 ft.; set csg. 2,812 ft.; W.O.C.
Porter & Pickens' No. 3-B Garcia Land & Cattle Co., 330 ft. W line, 914 ft. S line, 60-ac. tract, Blk. 5, Por. 100.
Location.
Skelly Oil Co.'s No. 6 Seabury, 319 ft. S line, 248 ft. E line, E 15-ac., NW 80-ac., S 263.8-ac., Tract 256, Por. 38, J. of Reynosa.
Location.
Skelly Oil Co.'s No. 8 Seabury, 319 ft. N line, 198 ft. W line, 13-ac. tract, Tract 256, Por. 38.
Location.
Skelly Oil Co.'s No. 10 Seabury, 440 ft. N line, 330 ft. E line, 24-ac. tract, Tract 256, Por. 38.
Location.
Skelly Oil Co. No. 11 Seabury, Tract 256, Por. 38.
Cored sand 2,811-21 ft.; set csg. 2,821 ft.; W.O.C.

Carolina-Texas—Webb County

Holland Reams No. 1 Webster, 150 ft. S and W lines, NW¼, NE¼, Sur. 884.
Spudded in.

Cole—Webb County

Cole Pet. Co. No. 92 Rosa, Benavides, Blk. 1, Sur. 13.
Drlg. 213 ft.

Lopez—Webb County

C. F. Lewis' No. 2 Lopez, 330 ft. N and W lines, Sur. 110.
Drlg. 1,729 ft.
Mills Bennett Prod. Co. No. 3 Montemayor, 2,310 ft. W line, 2,042 ft. N line, Sur. 114.
Drlg. 1,832 ft.
Mills Bennett Prod. Co. No. 5-A Montemayor, 330 ft. N line, 1,650 ft. E line lease, Sur. 114.
Sand 2,166-77 ft.; comp. 9 bbls. per hour; C.P. 100 lbs.
Montour Prod. Co.'s No. 1 Coffey, 330 ft. W line, 2,691 ft. S line, 80-ac. tract, Sur. 111.
Set csg. 2,311 ft.; drlg. plugs.
Mills Bennett Prod. Co.'s No. 1 A. Lopez, SW cor. tract, Share 13, Tract 111.
Location.
G. G. Mortimer's No. 1-A Montemayor, 330 ft. N and W lines lease, Sur. 114.
Location.
G. G. Mortimer No. 2 A. Montemayor, 990 ft. N line, 330 ft. W line, lease, Sur. 114.
Location.
G. G. Mortimer No. 5 M. Lopez, 330 ft. S and E lines, lease, Sur. 114.
Fishing 2,181 ft.
G. G. Mortimer No. 6 M. Lopez, 990 ft. E line, 330 ft. S line, lease, Sur. 114.
Location.
G. G. Mortimer No. 7 M. Lopez, 1,650 ft. E line, 330 ft. S line, lease, Sur. 114.
Location.
G. G. Mortimer No. 1 Maria Lopez, Sec. 112.
Sand 2,233-53 ft.; comp. 10 bbls. per hour on ¼-in. choke; C.P. 260 lbs.
Sierra Oil & Royalties Co. (Nixon & Talbot) No. 2 Billings, Sur. 113.
Coring 2,134 ft.
Superior Oil Co. No. 2 Billings, Sur. 109.
Drlg. 553 ft.

O'Hern—Webb County

O. W. Killam's No. 43 Brunt, Sur. 9, Foltz Subd., Arispe grant.
No report.

Magnolia Pet. Co. No. 22 Brennan-Benavides, center Blk. 260.
Drlg. 2,400 ft.

Magnolia Pet. Co. No. 24 Brennan-Benavides, center Blk. 422.
Set csg. 2,783 ft.; W.O.C.

Magnolia Pet. Co. No. 25 Brennan-Benavides, center Blk. 463.
Location.

Magnolia Pet. Co. No. 26 Brennan-Benavides, center Blk. 353.
Location.

Magnolia Pet. Co. No. 4-X Benavides, center Blk. 156, Hale Subd., Arispe grant.
Location.

J. J. O'Hern's No. 4 Brennan-Benavides, 347 ft. NW line, 313 ft. SW line, Blk. 196.
Location.

Texas Co. No. 8 Brennan-Benavides, center Blk. 294, Hale Subd., Arispe grant.
Sand 2,777-98 ft.; comp. 35 bbls. per hour.

Texas Co. No. 9 Brennan-Benavides, 310 ft. NE line, 155 ft. NW line, Blk. 433.
Drlg. 2,009 ft.

Texia Oil Corp. No. 1 S. Benavides, center Blk. 294, Hale Subd.
Location.

Texia Oil Co. and Nash No. 1-B S. Benavides, center Blk. 295, Hale Subd.
Testing 2,826 ft.

Escobas—Zapata County

S. R. C. Oil Corp.'s No. 16-A Trevino, 2,640 ft. E line, 330 ft. S line, Sur. 66.
Location.

Texas Co. No. 80 Whitehead, Cerrito Blanco grant.
Comp. 10 bbls. per day; T.D. 1,218 ft.

Texas Co. No. 81 Whitehead, Cerrito-Blanco grant.
Rigging up.

Haynes—Zapata County

Clover O. & G. Co.-James P. Nash No. 4 Haynes, Haynes Subd., Villa & Comitas grants.
Comp. 25 bbls. per hour; T.D. 889 ft.

Clover O. & G. Co.-James P. Nash No. 5 Haynes, Haynes Subd., Villa & Comitas grants.
Drlg. 57 ft.

L. C. Muckelroy No. 1 Haynes, Blk. 1, Comitas & Villa grants.
Rigging up.

WEST TEXAS WILDCATS

Week Ending December 21

Brewster County

F. C. Dodson's No. 1 Texas American Syndicate, 660 ft. from N and E, Sec. 66, Blk. .0, G.H.&S.A. Sur.
T.D. 1,715 ft.; R.U. on new location.

Joiner et al's No. 1 McIntyre, 353 ft. from S, 2,299 ft. from E of Sec. 21, Blk. 353, W. M. Mitchell Sur.
S.D. 2,150 ft.

G. H. Storey's No. 1 Wilson, 1,980 ft. from N and E lines of Sec. 3, Blk. 112, T.&St.L. Sur.
Elev. 3,409 ft.; S.D. 1,875 ft.

Concho County

Maverick Oil Co.'s No. 1 Jim Rice, 330 ft. from S and W lines of NW¼ of Sec. 18, S.N. Ry. Sur.
Drlg. 825 ft.

John W. Westbrook's No. 1 Ledbetter, 1,950 ft. from N and 3,300 ft. from E lines of Sec. 2, Sur. No. 1,078.
Drlg. 1,240 ft.

Crane County

Big Basin Pet. Corp.'s No. 1 Cowdin, 330 ft. from N and 1,650 ft. from E, sec. 77, Blk. X.
S.D. 1,315 ft.

Gulf Prod. Co.'s No. 1 Waddell, C NW NW Sec. 4, Blk. B-27, P.S.L. Sur.
Top Simpson 6,040 ft.; T.D. 6,450 ft.; P.B. to 6,317 ft.; bailed 30 bbls. oil; C.O. to bottom; 50 ft. oil tested 32.5 gr.

Humble O. & R. Co. No. 1 J. B. Tubb, 950 ft. from N and 900 ft. from W lines of sec. 11, Blk. B-27, P.S.L. Sur.
Rigged up rotary.

Moore Bros. No. 1 Barnsley, 1,320 ft. from S and W, Sec. 45, Blk. 32, P.S.L. Sur.
Location.

Texas Co. No. 1 E. Hughes, 2,964 ft. from S and 300 ft. from E, sec. 4, G.C.&S.F. Sur.
Material.

Wahlenmaier Pet. Corp.'s No. 2 Kloh, 330 ft. from S and W, Sec. 33, Blk. 44, Twp. 1s, T.&P. Sur.
Drlg. 2,957 ft.

Crockett County

J. G. Harris' No. 1 Parker, 435 ft. from S and 7,200 ft. from E, sec. 83, Blk. 1, I.&G.N. Sur.
S.D. 1,045 ft.

Leslie-Hiller et al's No. 1 Todd, 1,200 ft. N and 330 ft. E, Sec. 36, Blk. WX, G.C.&S.F. Sur.
S.D. 821 ft.

John L. Moore's No. 1 A. C. Hoover, 330 ft. from S and E lines of Sec. 4, Blk. FF B.&B. Sur.
Spudded and shut down.

Culberson County

Anderson-Prichard Oil Corp., Magnolia Pet. Co. et al's No. 1 Borders, 1,255 ft. N and 1,305 ft. from W, Sec. 34, Blk. 69, P.S.L. Sur.
Drlg. 2,985 ft.

Dawson County

Adams & Turner's No. 1 John Robinson, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 46, Blk. M, E.L.R.R. Sur.
S.D. 4,860 ft.

Ector County

W. P. Dunning, Jr., et al's No. 1 Mrs. Clarence Scharbauer, 440 ft. from S and 2,300 ft. from W lines of Sec. 33, Blk. 44, Twp. 1n, T.&P. Sur.
Drlg. 3,822 ft.

Gulf Prod. Co.'s No. 3 Goldsmith, 440 ft. from S and E, Sec. 32, Blk. 44, Twp. 1s, T.&P. Sur.
T.D. 4,110 ft.; shut in for storage; flowed 1,385 bbls. in 24 hrs.

Gulf Prod. Co.'s No. 2 Goldsmith, 2,300 ft. from N and 440 ft. from E lines of Sec. 15, Blk. 44, Twp. 1s, T.&P. Sur.
T.D. 3,967 ft.; fishing; reported 42,900,000 ft. of gas.

Phillips Pet. Co. No. 3 Cowden, 440 ft. from N and 1,320 ft. from W, sec. 36, blk. 44, Twp. 1s, T.&P. Sur.
Drlg. 600 ft.

Sun and Atlantic's No. 1 O. B. Holt, 1,980 ft. from S and 660 ft. from W lines of Sec. 6, Blk. 43, Twp. 1n, T.&P. Sur.
Shot with 110 qts. at 4,445-80 ft.; C.O.; flowing 58 bbls. of fluid 10% wtr. in 24 hrs.

York & Harper's No. 1 H. C. Foster, 660 ft. S and E Sec. 13-43-2s, T.&P. Sur.
S.O. 4,010-20 ft.; fishing 4,332 ft.

Edwards County

O. L. Williams' No. 1 Holman, 300 ft. from N and E, Sec. 145, C.C.S.D.&R.G.N.G. Sur.
S.D. 1,340 ft.

Fisher County

L. A. Daniels et al's No. 1 J. J. Nickless, 1,700 ft. S and 2,070 ft. W of SW cor. of Sec. 60, H.T.&B. Sur., but in Sub. 1, G. W. Lawrence Sur., 6 miles E of Roby.
S.D. 685 ft.

Tide Water's No. 2 Howard, 1,620 ft. from N and 1,550 ft. from E lines of Sec. 186, Blk. 2, H.&T.C. Sur.
Drlg. 3,520 ft.

Tide Water Oil Co.'s No. 1 Newman, 1,755 ft. from N and 1,054 ft. from W of NE¼ Sec. 2½, John Rodman Sur., 4 miles SE of Roby.
Top Noodle Creek lime 3,280 ft.; drlg. 3,676 ft.

Gaines County

Stogner's No. 1 Kirk, SW¼ Sec. 28, Blk. A-21, 8 miles S of Seminole.
Location.

Wahlenmaier Pet. Co. et al's No. 1 E. H. Jones, 660 ft. S and W, Sec. 414, Blk. G, C.C.S.D.&R.G.N.G. Sur., 23 miles NW of Seminole.
Drlg. 2,222 ft.

W. T. Walsh et al's No. 1 Averitt, 330 ft. N and E lines, Sec. 228, Blk. G, W.T.R.R. Sur.
Elev. 3,322 ft.; gas show 2,785 ft.; increase 2,795 ft.; increase gas 3,132 ft.; lost tools again; est. 15,000,000 ft. of gas; decreased to 4,000,000 ft.; T.D. 3,132 ft.; fishing.

Garza County

Grisham & Hunter No. 1 Sullivan, 330 ft. from S and 2,310 ft. from E, sec. 3, K. Aycock Sur.
Drlg. 953 ft.

Glasscock County

John L. Moore et al's No. 1 J. S. McDowell, 1,980 ft. from N line and 660 ft. from E line of Sec. 22, Blk. 34, Twp. 2s, T.&P. Sur.
Topped lime 9,471 ft.; show oil and gas 9,484-9,520 ft.; increase oil 9,594-9,600 ft. and 9,633-55 ft.; T.D. 10,116 ft.; made 150-bbl. flow when opened on test; were to deepen 5 days; burned equipment except rig.

Howard County

Superior Oil Co. No. 1 Logan.
Drlg. 1,880 ft.

Hudspeth County

Hayman-Krupp Oil & Land Co. No. 1 Saxton, 1,464 ft. from S and 291 ft. from E, sec. 34, Blk. 74, Twp. 6, T.&P. Sur.
Rigged up.

Jeff Davis County

C. M. Joiner's No. 1 Jones & Coffield, 770 ft. from N and 1,322 ft. from E, Sec. 8, Blk. 2, H.&T.C. Sur.
Twisted off D.S. 2,170 ft.

Jones County

Brown Eagle Oil Co. et al's No. 1 B. Fields, 4,166 ft. from N and 1,414 ft. from E lines of S. Andrews Sur.
Drlg. 2,025 ft.; S.O. 2,010 ft.

Conway & Gholson's No. 1 Cauthen, 150 ft. from S and W lines of Sec. 24, G. A. Williams Sur.
Drlg. 1,890 ft.

J. N. DeMont No. 1 L. G. Roberts, 150 ft. from N and 1,287 ft. from E lines, John Casner Sur.
Location.

Jamison et al No. 1 Triplett, 3,284 ft. from N and 200 ft. from E, Jasper Gocher Sur. No. 199.
Drlg. 975 ft.

J. N. Cooper's No. 1 W. E. Robinson, 660 ft. from S and E, Blk. 7, L. Matthews Sur.
Location.

R. L. Crawford et al's No. 2 Waltzer, 300 ft. from S and 533 ft. from W, Sec. 1, Blk. 2, T.&N.O. Sur.
Oil sand 1,945-51 ft.; T.D. 1,951 ft.

Bob Elmore No. 1 Coton, 675 ft. from N and 2,050 ft. from W lines of SW¼, sec. 10, D.D.&A. lands, 3 miles W of Avoca.
Spudded.

Farris & Fikes No. 3 Jennings, 330 ft. from S and W of NE of SE¼, Sec. 207, B.B.&C. Sur.
Machine rigged up.

Farris & Fikes' No. 1-A Jennings, 1,980 ft. from S and 150 ft. from W, Sec. 1, I.&G.N. Sur.
Machine.

Tom D. Medders et al's No. 1 J. E. Manley, 1,170 ft. from S and E lines of Sec. 35, Blk. 14, T.&P. Sur.
Drlg. 1,625 ft.

Moutray Oil Co. No. 1 Frank Olney, 2,333 ft. from N and W lines of 140-ac. tract in sec. 4, G. Martinez Sur. No. 195.
Drlg. 1,100 ft.

Peckham & Danciger's No. 1 City of Stamford, 1,316 ft. from N and 174 ft. from E, sec. 203, B.B.B.&C. Sur.
T.D. 1,816 ft.; ran csg.; show oil 1,816 ft.

Reliance Oil Co.'s No. 1 Crow, 660 ft. from S and 1,320 ft. from E lines of Sec. 9, D.&D.A. Sur.
Drlg. 2,025 ft.; S.O. 1,963 ft.

Shaheen et al's No. 1 J. J. Steele, 660 ft. from S and 1,980 ft. from E, Sec. 11, Blk. 15, T.&P. Sur.
S.D. 525 ft.

Shaheen et al No. 1 T. B. McCoy, 660 ft. from N and 1,320 ft. from E of most easterly SE cor. sec. 1, Blk. 16, T.&P. Sur.
Rigged up.

Sheldon Bros.' No. 1 J. Dillard, 1,000 ft. from S and 200 ft. from E, sec. 2, Blk. 17, T.&P. Sur.
Location.

Kimble County

Forrest Dev. Co.'s No. 1 Stopp, 660 ft. from N and 1,866 ft. from W, Sec. 682, Blk. N, G.H.&S.A. Sur., 18 miles SE of Junction.
Drlg. 2,500 ft.

Loving County

D. C. Evans' No. 1 W. D. Johnson, 2,310 ft. from N and 1,650 ft. from W, Sec. 12, Blk. 57, Twp. 1, T.&P. Sur.
S.D. 2,688 ft.

Martin County

Wright & Scott's No. 1 Flannigan, 330 ft. N and E, Sec. 22, Blk. 37, Twp. 1s, T.&P. Sur.
S.D. 100 ft. for casing.

McCulloch County

Mark Hill No. 1 McCall & Curtis, 160 ft. from S and E lines, sec. 692, 12½ miles N of Brady.
Set csg.; T.D. 760 ft.

Mark Hill's No. 1 Moore Bros., 934 ft. from S and 150 ft. from E lines of Sec. 3, State School Land Sur.
T.D. 690 ft.; P.B. to 605 ft.

Menard County

W. A. Snyder No. 1 L. E. Smith, 160 ft. from S and E of C. H. Booth Sur. 270, 14 miles NE of Brady.
Drlg. 1,000 ft.

Wilcox O. & G. Co. No. 1 Merchenson, 330 ft. from S and W, Sec. 155, E.L.R.R. Sur., Abst. 1,540, 8 miles S of Menard.
Rig.

Mitchell County

Lockhart et al's No. 1 W. C. Berry, 330 ft. from N and 2,310 ft. from E, Sec. 89, Blk. 97, H.&T.C. Sur.
S.D. 1,802 ft.; show oil 1,716-36 ft.; acidized; no results from acid.

Southern Union Prod. Co.'s No. 1 Castin, 330 ft. from S and E, Sec. 11, Blk. 28, 1s, T.&P. Sur.
Spudded and S.D.

Nolan County

Harris et al's No. 1 Georgia Institute of Technology, 330 ft. from S and 1,320 ft. from W, Sec. 89, Blk. 24, T.&P. Sur.
S.D. 200 ft.

Pecos County

Ajax Drlg. Co.'s No. 1 University, 2,310 ft. from S and W, Sec. 13, Blk. 18.
Drlg. 1,520 ft.

Cardinal Oil Co. No. 1-43 White & Baker, 330 ft. from N and E, sec. 43, Blk. Z, T.C.R.R. Sur.
Top sand 705 ft.; T.D. 804 ft.; U.R. csg.

Dobbs Oil Co. No. 1 Rooney, 990 ft. from E and 500 ft. from N, sec. 12, Blk. 125, T.&St.L. Sur.
Location.

C. R. Richards' No. 4 Courtney, 930 ft. from N and W, Sec. 78, Blk. OW, 360 ft. S of No. 2.
Elev. 2,967 ft.; may skid.

Tex-Mex Pet. Co.'s No. 1 Phillips-Brandenburg, 330 ft. from S and E of N half Sec. 42, Blk. 3, H.&G.N. Sur.
T.D. 1,605 ft.; set csg.

Trans-Pecos Oil Co.'s No. 1 F. W. Popham, 1,650 ft. from S and E, Sec. 235, Blk. 11, G.H.&S.A. Sur.
To spud.

Trans-Tex. Oil Co.'s No. 1 Caldwell, 330 ft. from E line and 330 ft. from S line of Sec. 27, Blk. 46, Twp. 9, T.&P. Sur.
S.O. 3,905-4,000 ft.; 1 bailer oil in 48 hrs.; S.D. 5,152 ft.

Reagan County

Dobbs Oil Co.'s No. 2 Friend, 660 ft. from W and 1,375 ft. from S, Sec. 3, Wm. Allen Sur.
Location.

Skelly Oil Co.'s No. 6 Grayson, 1,320 ft. from N and 440 ft. from W, Sec. 32, Blk. 8, University Lands.
Drlg. 1,047 ft.

Reeves County

Dunigan's No. 1 Davis, 330 ft. from N and W, Sec. 7, Blk. 58, P.S.L. Sur.
Location.

Grisham-Hunter Corp.'s No. 1 T. P. Land Trust, 1,320 ft. from S and W lines, Sec. 37, Blk. 57, Twp. 2, T.&P. Sur.
S.D. 3,225 ft.; show oil 2,972-85 ft. and 3,200-10 ft., and 3,222 ft.

Washington Oil Co.'s No. 1 J. M. Radford Grocery Co., 2,640 ft. from S and 340 ft. from E, Sec. 39, Blk. 58, P.S.L. Sur.
Elev. 3,169 ft.; T.D. 502 ft.

Runnels County

John Caster et al's No. 1 Giesecke, 330 ft. from N and 713 ft. from E, Sub. 3, Blk. 130, J. Hughes Sur. 227.
S.D. 502 ft.

Schleicher County

John M. Cooper et al's No. 1 Bert Page, 1,290 ft. from N line, 1,470 ft. from W line of Sec. 40, Blk. L, G.H.&S.A. Sur.
T.D. 6,257 ft.; P.B. to 5,555 ft.; acidized and made estimated 6,000,000 ft. gas; P.B. with 25 sacks cmt.

Cecil Rains et al No. 1 Judkins & Spencer, C SW¼ sec. 4, Blk. V-28.
S.D. 2,205 ft.; moving in heavy rotary.

Scurry County

Coffield & Guthrie's No. 1 Wade, 990 ft. from N and 330 ft. from W, Sec. 116, Blk. 97, H.&T.C. Sur
T.D. 3,168 ft.; P.B. to 1,900 ft.; pulling 8-in. csg.

Sutton County

Fleetborn Oil Corp.'s No. 1 G. S. Allison, 660 ft. from S and W, Sec. 49, Blk. A, G.W.T.&P. Sur.
Saturated sand 3,383-93 ft.; D.S. test 3,347-66 ft. showed 5 gals. heavy oil and small amt. drlg. fluid; drlg. 4,225 ft.

Taylor County

Hightower O. & R. Co. No. 1 E. E. Sadler, 250 ft. from N and 4,400 ft. from W, in C. Cole Sur., 2 miles W of Wiley.
Drlg. 756 ft.

Tom Green County

Mays Oil Co.'s No. 1 I. Funk, 1,980 ft. from S and 660 ft. from W, Sec. 35, Blk. 8, H.&T.C. Sur.
S.D. 1,452 ft.; hole full S.W.

Twin Oil Co.'s No. 1 W. M. Green, 1,050 ft. from N and 1,400 ft. from W, L. P. Moore Sur. 169½.
S.D. 315 ft.

Upton County

Greencliff Oil Corp. et al No. 1 J. H. Tippett, C NE¼ sec. 58, Blk. Y, T.C. Sur.
Location.

J. G. McKenzie's No. 1 Taylor, 1,650 ft. from S and 330 ft. from E lines of Sec. 22, Blk. B-2, G.H.&S.F. Sur.
T.D. 630 ft.

A. E. Lynch et al's No. 1 Sherk, 330 ft. from N and E, Sec. 25, Blk. 2, M.K.&T. Sur., 2 mi. E and 8 mi. N of McCamey.
Drlg. 2,070 ft.

Ward County

Abell Brothers' No. 1 Lancaster Estate, 294 ft. N 20 degrees and 15 minutes W of NE cor. Sec. 61, Blk. 8, H.&G.N. Sur. in Pecos County, 5½ miles down Pecos River from NW cor. of Pecos and E cor. of Reeves County.
T.D. 690 ft.; set csg.

Olsen & Anderson No. 1 Yell, 330 ft. NE and SE lines of W. F. Stewart Sur., sec. 6.
Drlg. 1,910 ft.

C. Cochran's No. 1 K. Greene, 990 ft. from NW and 2,980 ft. from SW, Sec. 29, Blk. B-29, P.S.L. Sur.
S.D. 1,375 ft.

Dobbs Oil Co. No. 1 A. F. Bray.
Drlg. 1,180 ft.

Stanolind O. & G. Co.'s No. 1 W. H. Martin, 1,650 ft. SW and 330 ft. from SE Sec. 40, Blk. 34, H.&T.C. Sur.
T.D. 2,957 ft.; P.B. to 2,834 ft.; to complete as gasser.

Wahlenmaier et al's No. 1 Potts, 990 ft. from SW and 330 ft. from SE, Sec. 35, Blk. B-29.
S.D. 2,205 ft.

Winkler County

Atlantic O. P. Co. No. 1 Lovett, 2,260 ft. from W and 2,200 ft. from S, Sec. 36, Blk. 26, P.S.L. Sur.
Drlg. 2,600 ft.

Crafton Oil Co.'s No. 2 Pure-Walton, 1,200 ft. N and E, Sec. 1, Blk. 3-B.
Material.

Crafton Oil Co.'s No. 1 Pure-Walton, 440 ft. E and 1,320 ft. S, Sec. 2, Blk. 3-B, P.S.L. Sur.
Drlg. in under pressure, 2,190 ft.

Emperor Oil Co.'s No. 1 Continental-Holley, 330 ft. from S and 2,310 ft. from W, Sec. 12, Blk. B-12.
T.D. 2,005 ft.; recmtng. csg.

Gulf Prod. Co. No. 1 Hill, 440 ft. from S and 2,200 ft. from E, sec. 9, Blk. B-11, Location.

Gulf Prod. Co.'s No. 3 Keystone Cattle Co., 330 ft. from N and W of NE¼ Sec. 11, Blk. B-3.
T.D. 3,765 ft.; P.B. 3,320 ft.; cleaning out.

Gulf Prod. Co.'s No. 4 Keystone Cattle Co., 330 ft. from N and E, Sec. 20, Blk. B-3.
T.D. 3,756 ft.; P.B. 3,375 ft.; S.D.

Gulf Prod. Co.'s No. 5 Keystone Cattle Co., 330 ft. from S and W of Sec. 14 Blk. B-3.
Elev. 2,964 ft.; T.D. 4,463 ft.; T.A.

Gulf Prod. Co.'s No. 9 Keystone Cattle Co., 330 ft. from S and W of Sec. 14 Blk. B-2.
Elev. 2,946 ft.; S.D. 4,126 ft.

Gulf Prod. Co. No. 10 Keystone, 440 ft. from E and 2,200 ft. from S, Sec. 10, Blk. B-3.
Drlg. 1,200 ft.

K-D Oil Co.'s No. 1 P. Mitchell, 1,650 ft from N and 2,310 ft. from E, Sec. 34 Blk. B-10, P.S.L. Sur.
Cable tools rigged up.

Magnolia Pet. Co. No. 1 State-Walton, 2,310 ft. from S and 990 ft. from E, sec. 7, Blk. B-3.
Cellar.

Magnolia Pet. Co. No. 2 Sealey, 330 ft. from S and W, Sec. 94, Blk. A.
Drlg. 535 ft.

Mascho Oil Co.'s No. 1 Evans, 1,320 ft. from N and W, Sec. 8, Blk. 56.
S.D. 80 ft.

Mascho Oil Co.'s No. 1 Evans, 1,170 ft from N and 1,320 ft. from W, Sec. 44 Blk. 73, P.S.L. Sur.
S.D. 217 ft.

Richardson's No. 1 B. F. Jenkins, 440 ft. from S and E, Sec. 13, Blk. 77, P.S.L. T.D. 3,498 ft.; testing tubing.

Sioux Oil Co.'s No. 1 Lowett, 330 ft. from N and E, Sec. 36, Blk. 26, P.S.L. Sur T.D. 3,130 ft.; P.B. 3,091 ft.; 2 bbls. oil and 1,840,000 ft. gas per day.

Thurman et al's No. 1 Seth Campbell 18-B-3, 330 ft. from S and 1,650 ft. from W lines of Sec. 18, Blk. B-3, P.S.L. Sur T.D. 3,303 ft.; flowed 75 bbls. oil in 8 hrs. then swabbed 75 bbls. in 6 hrs.; perforated csg. 2,850-3,294 ft.; C.O.

Wahlenmaier et al's No. 1 Walton, 990 ft from S and 330 ft. from E, Sec. 3, Blk. 16.
Drlg. 3,067 ft.

Wilgo Oil Corp.'s No. 1 Campbell, 900 ft from N and 300 ft. from E Sec. 2, Blk. 6, P.S.L. Sur., 3 miles E of Kermit.
Elev. 2,584 ft.; T.D. 4,639 ft.; P.B 3,560 ft.; S.D.

Wilson Keyes No. 1 Car-Tix O. & G. Co. Loc.

Yoakum County

C. J. Davidson et al's No. 1 Bennett, 1,320 ft. from N and E, Sec. 678, John H. Gibson Sur.
Elev. 3,557 ft.; T.D. 5,090 ft.; 4,000 ft. fluid in hole, mostly oil; set 6⅝-in. csg. at 4,651 ft.

Texas Panhandle Wildcats

Week Ending December 21

Carson County

Robert Watchorn's No. 1 Eller, 330 ft. from S and E lines of W½ and SE¼ of Sec. 9, Blk. 7, H.&G.N. Sur.
Drlg. 2,900 ft.

Childress County

Alma Oil Co.'s No. 1 Lowe, 660 ft. from N and W of SW¼ Sec. 417, Blk. H, W.&N.W. Sur., 8 of Kirkland.
S.D. 8,234 ft.; P.B. 5,682 ft.; perforated csg.; 34 holes from 5,670-80 ft.; pumping 20 bbls. water per hour; showing some oil.

Collingsworth County

Tom Hunter et al's No. 1 Tinsley, 660 ft. from S and 1,020 ft. from E of NE¼ Sec. 8, Blk. 13, H.&G.N. Sur.
Drlg. 936 ft.

Gray County

Christie & Hickman No. 1 Gethings, 330 ft. from S and 990 ft. from W of SE¼ Sec. 48, Blk. A-9, H.&G.N. Sur.
Drlg. 562 ft.

Drilling Exploration Co.'s No. 1 Lapoid, 330 ft. S and W, Sec. 141, Blk. 3, L& G.N. Sur.
Material.

Harry Foster's No. 1 Johnson, 330 ft. from N and E lines of Sec. 21, L. L. Erwin Sur.
S.D. 820 ft.

K. Kinseya No. 1 Stephens, 330 ft. from S and E of W½ of NE¼ sec. 187, Blk. B-2, H.&G.N. Sur.
Rig.

Plains Holding Co.'s No. 1 Morse-Gulf, 330 ft. S and W, Sec. 57, Blk. 25, H.&G.N. Sur.
Derrick.

Saulsbury Oil Co.'s No. 1 Carpenter, C NE¼ Sec. 37, Blk. 25, H.&G.N. Sur.
S.D. 2,925 ft.

Hall County

Davis et al's No. 1 Knorpp, 330 ft. S and W, Sec. 7, Blk. A, A.B.&M. Sur.
S.D. 530 ft.

Phillips Pet. Co.'s No. 1 Hughes, C N½ Sec. 4, Blk. H, H. Stephens Sur.
Drlg. 3,200 ft.

Hartley County

O. V. Beck et al's No. 1-A Matador ranch, 350 ft. from N and 385 ft. from W of most northerly NW cor. Sec. 20, Blk. 22, C.S.S. Sur.
Drlg. below 4,000 ft.

Hutchinson County

Burnett's No. 1 Ingerton, 770 ft. from S and 1,320 ft. from W, Sec. 327, Blk. 2, E.L.R.R. Sur.
Drlg. 2,653 ft.; tested 4,000,000 ft. gas.

Phillips Pet. Co. No. 1 Bryan, 330 ft. from S and E of NE¼ sec. 4, Blk. M-31, T.C. Ry. Sur.
Location.

Power Pet. Co.'s No. 1 Hodges, 660 ft. S and E of most southerly 80 acres of S 160 acres of SE 200 acres, Sec. 16, Blk. M-35, T.C. Sur.
Rig.

Stinnett Oil Co.'s No. 1 Starnes, 330 ft. from N and 275 ft. from W of E½ of NW¼ Sec. 22, Blk. M-23, T.C. Ry. Sur.
T.D. 3,121 ft.; C.O.; showing some wtr.

H. J. Wasson's No. 1 Haile, 330 ft. from S and W, NW 120 ac., Sec. 5, Blk. M-21, T.C. Sur.
Drlg. 2,571 ft.

Moore County

Anderson & Kerr's No. 1 Morton, 1,320 ft. from N and 2,640 ft. from E, Sec. 205, Blk. 3-T, T.&N.O. Sur.
Drlg. 350 ft.

Anderson & Kerr's No. 1 Wilson, 660 ft. from S and E, Sec. 209, Blk. 3-T, T.& N.O. Sur.
T.D. 2,764 ft.; standardized.

Anderson & Kerr's No. 1 Wilbur, 660 ft. from S and E lines of NW¼ of Sec. 226, Blk. 3-J, T.&N.O. Sur.
37,000,000 ft. gas at 3,090 ft. drlg. 3,125 ft.

Shamrock O. & G. Co. No. 1 L. L. Hill, 1,320 ft. from N and 330 ft. from E of NW¼ Sec. 359, Blk. 44, H.&T.C. Sur.
R.U. rotary.

Wheeler County

Allender & Heare's No. 1 Harvey, 330 ft. from S and W lines of E½ of SW¼ of Sec. 67, Blk. 13, H.&G.N. Sur.
Drlg. 1,310 ft.

Barnes & Green No. 1 George, 330 ft. from N and W of W½ of SW¼ Sec. 76, Blk. 17, H.&G.N. Sur.
Drlg. 287 ft.

Smith Bros. No. 1 Woodward, 1,650 ft. from N and 330 ft. E of E½ sec. 22, Blk. 24, H.&G.N. Sur.
Derrick.

Ochiltree County

James R. Macon's No. 1 W. R. Norris, 330 ft. S and 990 ft. E, Sec. 212, Blk. 43, H.&T.C. Sur.
Shut down.

NORTH CENTRAL TEXAS WILDCATS

Week Ending December 21

Archer County

Darsey and Continental No. 1 Jones, 150 ft. from N and W lines of SW¼ of sec. 1840, T.E.&L. Sur.
S.D. 953 ft. for 6-in. csg.

Deep Oil Dev. Co. No. 8 Lee, 4-A, L. F. Wilson, 990 ft. from S and 565 ft. from E lines of sec. 75, A.T.N.C.L. Sur.
Oil sand 2,203-08 ft.; flowed 92 bbls. first hr.

Humble O. & R. Co. No. 1 Wm. Coleman 1,482 ft. from N and 2,397 ft. from W of SE cor. of Blk. 74, A.T.N.C.L. Sur.
S.D. 2,300 ft.

Solo Oil Co. No. 1-B Hamilton, 150 ft. from S and 977 ft. from E lines of N 20 of S 243 acres of E½ of Blk. 1, Crawford Subd.
Location.

J. B. Shira No. 1 D. L. Wolf, 150 ft. from S and E lines of Lot 56, Blk. 4, Clark & Plub Sur.
Location.

Baylor County

Evans & Collins No. 1 G. Longley, 185 ft. from N and 1,930 ft. from E line of N. Dennis Sur.
S.D. 1,250 ft.

W. P. Morris et al No. 1 C. T. Porter, 1,170 ft. from N and 150 ft. from E. Edward Brown Sur.
S.D. 1,063 ft.

Cooke County

T. P. Frost No. 1 Dangelmayer, 450 ft. from N and 150 ft. from W lines of SE¼ of Blk. 20, G. Frey Sur. A-516.
Location.

Big Indian Oil & Dev. Co. No. 1 J. S. Floyd, 1,044 ft. from E and 2,533 ft. from N of extreme SW lines, E. Barnes Sur.
S.D. 4,005 ft.

Hardin Oil Co. No. 1 J. G. Bonner, 1,350 ft. from W and 150 ft. from N, J. Lindheimer Sur.
Drlg. 50 ft.

J. F. Hart No. 1 Gwyn, 150 ft. from N and 1,320 ft. from W lines of Marshall University Sur. A-619.
T.D. 1,120 ft.; S.D.; saturated lime 1,039-41 ft.

Jacob-Bell Oil Co. No. 1 B. Dudenhofer, 1,340 ft. from S and 330 ft. from W lines of Wm. A. Pledger Sur.
Drlg. 950 ft.

J. N. Martin et al No. 1 Mrs. J. C. Talbot, 1,500 ft. from S and 900 ft. from E line, Jacob Lawson Sur., 2 miles SE of Gainesville.
Top sand 1,605 ft.; T.D. 1,615 ft.; 650 ft. oil in hole in 12 hrs.; running tubing.

Mills & Carey No. 1 A. M. Besner, 150 ft. from N and W lines of J. B. Trenary Sur.
Spudded.

Regal et al No. 1 Clem Hermes, 1,375 ft. from N and 200 ft. from E lines of A. W. Van Slyke Sur.
Drlg. 650 ft.

J. M. Russell et al No. 1 B. B. Bawley, 1,450 ft. from S and 150 ft. from W lines of Blk. 24, John Barnett Sur.
Spudded and S.D.

Sunray Oil Co. et al No. 1 A. C. McCall, 500 ft. from S and 550 ft. from W lines of W. H. White Sur., NE of Gainesville in bend of river.
S.D. 2,365 ft.

Woodbine Oil Co. No. 1 Potter & Potter, 150 ft. from N and E of SE cor. of G. Morris Sur., but in J. Gorham Sur.
Spudded and S.D.

Denton County

Burns Oil Co. No. 1 J. T. Harmon, 1,040 ft. from N and 370 ft. from W lines of lease, J. M. Moses Sur.
Drlg. 1,760 ft.

Oil Finance Corp. No. 1 J. S. Gambill, 400 ft. from S and 550 ft. from W lines of T. Burress Sur.
Spudded and S.D. on new hole, south of Denton.

Wagener et al No. 1 C. N. Skaggs, 1,700 ft. from N and 300 ft. from E lines of W. C. Whorton Sur.
S.D. 1,560 ft.

Jack County

Crenshaw et al No. 1 S. J. Beasley, 330 ft. from S and E lines of N½ of Beasley lands in George Hardesty Sur.
Gas sand 2,954-61 ft.; fishing tools.

Nelson Oil Synd. No. 1 J. P. McCoy, 330 ft. S and E of most northerly NW cor. of A. S. Ensworth Sur.
Drlg. 740 ft.

Singer Steel & Metal Co. No. 1 J. A. Hester, 330 ft. from S and W lines of J. Ash Sur.
Drlg. 2,325 ft.

Montague County

Benson Bros. & McIntyre No. 1-B Williams Est., 4,400 ft. from S and 1,900 ft. from W of NE cor. of George Dooley Sur.
Drlg. 2,300 ft.

Boardman Bros. No. 1 L. Keck, 6,200 ft. from S and 2,600 ft. from W of NE cor. of Wm. Donoho Sur.
S.D. 897 ft.

J. F. Hart No. 1 W. M. Talley, 1,000 ft. from SW and 200 ft. from SE, J. Perrin Sur.
Fishing 350 ft.

Jim Seeds et al No. 1 Coombs, 150 ft. from N and E lines of W 80 acres of 160-ac. farm, sec. 58, M.E.P.&P. Sur.
Derrick.

F. L. Valch No. 1 Adams, 150 ft. from N and W lines of 80-ac. farm, R. H. Grimes Sur. A-288.
Drlg. 1,150 ft.

W. C. Wells et al No. 1 Aldrich, 800 ft. from SE and 1,200 ft. from NE lines of V. B. Matthews Sur. A-557.
Bldg. derrick.

M. C. Wells No. 1 Collier, 750 ft. from SW and 1,120 ft. from SE line of M. Hunt Sur., sec. 14.
Spudded and S.D.

Westqumo Co. No. 1 J. M. Willett, 480 ft. from S and 400 ft. from E lines of Blk. 3, Harriet Brown Sur.
Drlg. 830 ft.

Wichita County

Jack Faraboe No. 1 L. F. Ramming, 150 ft. from S and W lines of sec. 3, B.S. &F. Sur.
Drlg. 1,356 ft.

Tom Medders No. 1 Humphreys & Bullington, 1,162 ft. from S and 927 ft. from E lines of Blk. 5, League 2, D.C.S.L. Sur. A-57.
R.U. rotary.

Wilbarger County

Franklin Oil Co. No. 1 D. G. Feller et al, 2,850 ft. from N and 1,550 ft. from W lines, sec. 103, Blk. 14, H.&T.C. Sur.
T.D. 1,520 ft.; C.O.

Smith No. 1 S. A. Dill et al, 150 ft. from N and E lines, sec. 82, Blk. 14, H.&T.C. Sur.
T.D. 1,600 ft.; running 6-in. csg.

Wise County

W. B. Hamilton No. 1 S. L. McNay, 1,320 ft. from NE and 980 ft. from SE lines of N. Ledbetter Sur.
S.D. 1,277 ft. for 5-in. csg.

Jarvis & Nix et al No. 1 Williams, 1,100 ft. from S and 1,400 ft. from E lines of Blk. 4, F.C.S.L. Sur.
T.D. 975 ft.; moving in equipment.

Young County

Carl Pet. Co. No. 1 Goss, 150 ft. from S and W lines of sec. 1592, T.E.&L. Sur.
Location.

Christie Bros. No. 1 Primitive Baptist Church, 3,394 ft. SE and 500 ft. from NE lines of S. L. Hill Sur. A-126.
Location.

H. J. Cox No. 1 E. A. Corbett, 650 ft. from N and 750 ft. from E lines of Ruthy Campbell Sur.
T.D. 4,343 ft.; running 2-in. tubing.

Horwitz & Oldham No. 1 Thompson, 150 ft. from N and 750 ft. from W lines of Sec. 333, T.E.&L. Sur.
Drlg. 750 ft.

C. D. Neff et al No. 1 W. A. Dennis, 1,530 ft. from N and 1,782 ft. from E. C. F. Bass Sur.
Drlg. 650 ft.

Pitzer & West No. 1 McCluskey, 660 ft. from N and W lines of 74-ac. tract, sec. 1104, T.E.&L. Sur. A-827.
Rig.

Pitzer & West No. 1 J. N. Booser, 3,000 ft. from S and 1,800 ft. from E lines of sec. 1,104, T.E.&L. Sur., 150 ft. south of river.
Lime 3,600-05 ft.; hole full oil; acidized with 3,000 gals. acid; flowed 35 bbls. per hr.; cased off upper pay, 3,790 ft.; drlg.

Roberts Oil Corp. No. 1 McCarroll, 330 ft. from N and E lines of W. Fullerton Sur.
Oil pay 3,685-89 ft.; flowed by heads every 2 hrs.; killed well to run csg.

Humble O. & R. Co. No. 1 Mrs. Fannie Knox, 1,439 ft. from N and 2,956 ft. from W lines, Washington Co. R.R. Sur.
Drlg. 4,250 ft.; black shale.

Chicago Market

CHICAGO, Dec. 23.—The oil marketing trade has been dividing its attention between the strength in crude oil and the strength in the domestic fuel oils. It has been a long time since conditions in crude have been attracting as much interest in this general region as has been the case in the last few days. The general feeling here is that a Mid-Continent crude price advance is imminent.

The coming of the holiday season has witnessed the taking of the edge off gasoline trade, with consumption down to a rather low level, but at the same time it has seen a much stimulated domestic fuel oil trade. Prices in the latter products are now at the best levels of the season. Householders have been sending in orders in some of the larger centers of population that have kept distributors busy with all their facilities. In turn, the distributors have been sending rush orders along to their sources of supply.

Survey of refiners and carlot marketers shows that supplies of high-grade fuel oils are not so plentiful as they might be. Numerous refiners claim to have overcommitted themselves in the taking of contracts and have withdrawn from spot market dealings, and in some cases are buying to fill out their own contract needs. The prime distillate in particular is in strong demand, and No. 3 is a product much sought.

Tank Car Gasoline Slow

The tank car gasoline business is slow, but may be better almost immediately when jobbers give over their year-end policy of holding inventories to almost nothing. Prices are holding about the same. Contract shipments are fair for the season.

Tank wagon and service station price conditions are a little firmer than recently, and no additional cuts of importance are being witnessed, although conditions still leave much to be desired, at least in some sections of the Middle West.

Kerosene, while in an off season, is showing a little spotty improvement. Prices are holding, in most cases. Some refiners are building up kerosene stocks for early spring needs.

The heavy fuels are still in a somewhat mixed position. The material for movement out into the territory generally is easy, not to say soft. But in the immediate Chicago district there is a good call, with steel companies and other large consumers buying actively, despite proximity of year-end.

Lubricants are holding strong. They are in good demand, with prices steady.

Wax also shows strength, and is generally holding its own.

Business in solvents and naphthas continues routine, with prices unchanged.

There is no change in coke, with demand good.

J. C. Underwood, Republic Supply Co., Tulsa, accompanied by Mrs. Underwood and their daughters, are spending Christmas week in Houston, Tex., with Mr. Underwood's mother. While in Houston Mr. Underwood will visit the main offices of his company.

PERSONAL

A. R. HEISE, who has been manager of the Union Oil Company's Oleum refinery in the San Francisco Bay region for the past 10 years, has been appointed supervisor of operations, refineries department, and in his new capacity will make his headquarters in Los Angeles. Mr. Heise became an employe of the Union Oil Company in 1909 and successively became superintendent of the Port San Luis plant, Avila refinery, Los Angeles refinery and then of the Oleum refinery.

ART BENNETT, with Lufkin Foundry & Machine Company, has been transferred from Henderson, Tex., to Longview, Tex., where the company has opened an office.

L. H. HUMPHREY, engineer with Harry Stekoll, Borger, Tex., is in Tulsa for Christmas.

WILL J. REID, president of Hancock Oil Company, is rapidly recovering from a recent illness.

RAY L. McCOY, land man for the Superior Oil Company, has been transferred from Louisiana to Midland, Tex., to be in charge of the land department there for his company.

O. L. TAYLOR, of Flint, Mich., who heads Genessee County's oldest oil royalty firm, recently formed a new corporation with Frank Quinlan, of Mount Pleasant, as purchasing agent.

JULIAN MEEKER, independent operator of Fort Worth, announces a Christmas present in the form of a new son, as does TOMMY THOMPSON, engineer for the Stanolind Oil & Gas Company, Fort Worth.

A. M. BLOW, vice president and general manager, and H. G. OFFICER, superintendent of the land department for the Amerada Petroleum Corporation, Tulsa, were visiting the company's offices in Fort Worth during the past week.

VIRGIL M. VOORHEES, a prominent Michigan producer and contractor who has drilled in all Michigan fields since the Saginaw area was opened in 1925, is recovering from injuries sustained in an automobile accident near Pontiac, Mich.

M. T. SCHLICHER, formerly general superintendent for South Louisiana for Yount Lee Oil Company, whose properties recently were acquired by Stanolind Oil & Gas Company, has been elected vice president of the Twin Seat Valve Company, recently organized at Beaumont, Tex. E. H. ROBERTSON, Houston Oil Field Materials, Inc., Houston, is president of the company.

M. L. VINCENT and L. L. WELSH, independent operators at Eunice, have moved their offices to Lake Charles, La.

WALTER A. OLEN, president and general manager of the Four Wheel Drive Auto Company, Clintonville, Wis., has been selected as speaker for the National Association of Manufacturers.

ROBERT E. WILSON, vice chairman of the Pan American Petroleum & Transport Company with headquarters at New York, made a tour of inspection of the company's holdings along the Gulf Coast the past week.

GEORGE B. EGGLESTONE, vice president of the Duval Pipe Line Company, San Antonio, Tex., spent several days in Corpus Christi and Houston last week, making arrangements for the laying of a line from Corpus Christi to the newly opened Clara Driscoll field in Nueces County.

F. JAMISON of Nowata, Okla., is now with the Hughes Tool Company in the Panhandle, Tex.

A. R. EPPENAUER, drilling contractor, operator and producer of San Angelo, Tex., is moving his offices to Fort Worth.

W. E. McLAUGHLIN is now representing the Murray Tool & Supply Company in the Panhandle field, with headquarters at Pampa, Tex.

R. H. MORRISON, division manager of The California Company, has returned to his headquarters at Dallas after a vacation spent in California, and Southwest Texas.

SAMUEL S. ALEXANDER, president of the Oil Production Corporation of Texas, is in Logansport, DeSoto Parish, Louisiana, where he is inspecting the drilling of a well. He will spend some time in Young and Shackelford Counties, Texas.

EARL N. SPIERS has been made West Texas representative of the Lufkin Foundry & Machine Company in the West Texas district and will reside in Odessa, Tex. MR. SPIERS and MISS DORIS BOLTON of Henderson, Tex., were married in that city on November 30.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Over 44,000,000 barrels of oil will be produced in 1910 in the territory of the Five Civilized Tribes in Oklahoma, according to Dana H. Kelsey, superintendent, at Muskogee. Of the total, 28,000,000 barrels will have been produced on departmental leases.

W. L. Mann, president of the Vacuum Oil Company, who was stricken with apoplexy at the company's refining plant in Bayonne, N. J., died in St. Marys Hospital. His home was in Summit, N. J.

Charles Webster, veteran tank manufacturer in the Pennsylvania oil fields, dies in Springview, Neb. He was the father of Mrs. David F. Connolly, of Tulsa.

20 YEARS AGO

War demand has increased the volume of benzol manufactured in the United States from 3,000,000 gallons to 15,000,000 gallons per year. It is used in the manufacture of explosives for the allied armies.

The Prairie Pipe Line Company will lay a line from Neodesha, Kans., to the recently opened Augusta-Eldorado field in Butler County, 87 miles from end to end, and the first oil pipe line into the field.

The Roxana Petroleum Corporation, a Royal Dutch-Shell subsidiary, has increased its capital from $1,000,000 to $8,000,000, and will expend the money on Oklahoma oil properties, especially in the Cushing and Healdton fields.

Gasoline retails at 21 cents per gallon at New York garages. Kansas City filling stations sell it at 14 to 15 cents.

10 YEARS AGO

S. B. Hunt, vice president of the Standard Oil Company (New Jersey), has been elected treasurer of that company to succeed George H. Jones, who was advanced to chairman of the board.

William C. McDuffie was recently made general production manager of the Shell group of companies throughout the world. For a time he will be in Venezuela to give special attention to Shell's extensive holdings.

Pay at 2,710-65 feet is found by the Ohio Oil Company in the Artesia, New Mexico, field.

W. G. HOLLIDAY, president of the Standard Oil Company of Ohio, was recently elected a vice president of the National Association of Manufacturers.

B. A. BRILL, geologist for the Humble Oil & Refining Company, has been transferred to the company's main office at Houston from Midland, Tex.

W. A. HUDSON, head of the Emperor Oil Company of Fort Worth, has purchased a plane for speeding up his trips to the fields in which he is interested.

P. L. McGEE, petroleum engineer for Humble Oil & Refining Company at the Dickinson field, Texas, has been transferred to the Thompson, Tex., district in the same capacity.

N. F. MYERS, of the Union Oil Company, has been appointed manager of Oleum refinery, succeeding R. A. HEISE, who has been appointed supervisor of operations, refineries department.

G. L. YATES, instructor of petroleum engineering in the University of Pittsburgh, Pittsburgh, Pa., is spending the Christmas vacation at the home of his parents in Bartlesville, Okla.

H. G. DOLL, engineer of the Schlumberger Oil Well Surveying Company, arrived in Los Angeles recently from Paris, France, from which point he has been making a survey of California oil fields.

HOWARD D. ATHA and DR. VIRGIL R. D. KIRKHAM, of Mount Pleasant and Saginaw, Mich., were reelected president and vice president of the Oil and Gas Association of Michigan last week at a meeting of the newly elected board of directors. F. A. CALVERT and GEORGE TALBOT were renamed treasurers, and HASWELL W. GRANT, of Mount Pleasant, was elected secretary.

PARAGRAPHS

CAPTAIN THOMAS S. MASTERSON, D.S.O., a director of the Phoenix Oil & Transport Company, Ltd., in Rumania, arrived in London Wednesday.

SIR HARRY McGOWAN, K.B.E., chairman of Imperial Chemical Industries, Ltd., conferred on him recently the honorary degree of D.C.L., at Oxford University.

R. N. KIRBY, who returned to England from Trinidad at the beginning of September, left London for Bahrein Island recently to take up an appointment with the Bahrein Petroleum Company.

PHILIPS W. WRIGHT, production superintendent of the Anglo-Iranian Oil Company, who attended the annual meeting of the A.P.I. at Los Angeles, is en route to Iran (Persia) after a short visit in England.

MISS HELEN BIRD, micropaleontologist for the Humble Oil & Refining Company, Midland, Tex., and CHARLES FREDERICK FALLEY III, petroleum engineer for the same company at McCamey, Tex., were married at El Paso on December 7. The bride is a graduate of the University of Oklahoma and Mr. Falley is a graduate of Texas A. & M. College.

L. A. WILSON and O. E. SNYDER, of the Ohio Oil Company in the Byron field, were in Glenrock, Wyo., on business last week.

J. LLOYD DITTMAN, Wall Rope Works Company, Tulsa, has returned from field trips in Kansas, Texas Panhandle and West Texas.

FRED T. MANNING, of Manning & Martin, Inc., returned to Denver from Cut Bank, Mont., where he was winding up operations for the winter.

S. M. GREENIDGE, with the Texas Pacific Coal & Oil Company, Fort Worth, was elected president of the Technical Club in that city on December 19.

D. C. TERRY, manager of the Parkersburg, W. Va., office for Wall Rope Works, has returned from a trip to the fields of Michigan and northeastern Ohio.

J. A. WARREN, of the Kinney-Coastal Oil Co., was at Denver headquarters this week from the Big Horn Basin, in Wyoming, where his company is drilling a well.

WILLIAM M. HOLLAND, superintendent of production for the Ohio Oil Company at Casper, and R. M. MILLER, of Cody, Wyo., were in Thermopolis, Wyo., last week on company business.

C. L. NIEDERER, of Havana, Ill., a director of the Wilmington Oil Company, is making his headquarters in Casper in connection with his company's wildcat operation in the Red Desert area, Fremont County, Wyo.

A. G. KEYES, president of the Keyes Tank & Supply Company, of Casper, Wyo., is on a business trip to Cody, Wyo. He recently returned from the Hardin field, Big Horn County, Mont., where his company erected some tankage.

LLOYD ENSIGN, engineer for the Trinidad Leaseholds, Ltd., is spending the Christmas holidays in England.

A. M. MARTINI will be office manager and GEORGE RIGGS in charge of the geological department in the Bell Oil & Gas Company's district office recently opened in Wichita Falls, Tex.

C. J. DAVIDSON, LYLE R. SPROLES and R. T. THORNTON have formed the Cascade Petroleum Company which will have offices in Fort Worth. Mr. Davidson is co-owner of the Yoakum County discovery well.

CHAS. D. WAGNER, vice president and manager, and E. E. STEVENSON, chief engineer, of the D-B Pump & Supply Company of Los Angeles, Calif., have gone to Dallas, Tex., to supervise completion of the $150,000 addition to the company's plant there and the installation of new equipment.

W. J. MORRIS, president of the Continental Supply Company, was elected a member of the board of directors of the Dallas Chamber of Commerce at the annual membership meeting of the chamber held on December 3. Since the offices of the Continental Supply Company were moved to Dallas late in 1933, Mr. Morris has served on a number of important committees of the Chamber of Commerce and has taken an active interest in civic matters. He was elected to serve for three years.

GEORGE A. PETERKIN, Williams Brothers Well Treating Company, Tulsa, is spending the Christmas holiday in Baton Rouge, La.

Knows Ladder's Rungs

J. L. Nichols, district superintendent for Stanolind Oil & Gas Company, in charge of its Kansas production, knows the ladder rungs, for he has climbed them. He was born in 1894 in Waller County, Texas, near Houston, where his father was a farmer and stockman. When the boy was 11 the family moved to Brownwood, Tex. There he completed high school and attended business college. He kept books for a cotton gin and oil mill company for a while. Then, with a brother, he tried ranching, without smashing any records.

J. L. NICHOLS

The World War found him working in a powder mill 20 miles up the Cumberland River from Nashville, Tenn. There he met Miss Grace Carroll, whom he married three years later. The war over and having had enough of ranching, young J. L. got a job as timekeeper and material man for McMan Oil & Gas Company in Desdemona, Tex. From that point he had his opportunity to inspect the ladder rungs as he ascended them. In turn he became roustabout, pumper and head roustabout. Eventually he was made a production foreman and sent to Mannford, Okla.

A series of shifts, accompanied by valuable field training, followed. The young man was moved to Corsicana, Tex., then to the Three Sands area in Oklahoma. Promotion to district superintendent in the Borger-Pampa area came next. He continued in this position when Stanolind bought the McMan holdings of which he was in charge. When the East Texas excitement began he was sent to Longview, then to Wink. Early in 1934 Mr. Nichols was transferred to Wichita, Kans., to assume his present position.

HARRY HOTCHKIN of San Antonio, Tex., recently returned from a two-week trip to Chicago and Detroit.

FRANK OYSTER, consulting, geologist and operator at Abilene, Tex., is spending the holidays with his parents at Paola, Kans.

R. H. COOLIDGE, plant superintendent for the Strom Steel Ball Company, Chicago, spent several days in Fort Worth, Tex., during the past week.

F. E. WILDER, formerly in the oil export business in New York City, but now interested in the producing end of the industry, has just completed a business trip to Texas.

C. L. WATERBURY, member of the Federal Tender Board at Kilgore, has gone to Washington, D. C., on business connected with his work with the department of the interior.

W. C. KNEALE, formerly geologist for The Texas Company at Wichita Falls, Tex., has been transferred to the Tulsa division of the company, and now has headquarters at Urbana, Ill.

TOM BRANDON, West Texas representative for JON R. LONG, manufacturer, with headquarters at Midland, has been transferred to the East Texas district and will headquarter at Henderson.

M. M. (MAT) NEWELL, Rocky Mountain representative of Hughes Tool Company, and MRS. NEWELL, left Casper last week for Los Angeles, Calif., where they will spend the Christmas holidays.

DR. R. R. MORRIS, head of the exploration department, and R. L. RYAN, superintendent of the land department, both with the Shell Petroleum Corporation at Houston, made a business trip through the Southwest Texas district last week.

Prices on East Coast Refinery Products Practically Unchanged During Week

By C. O. WILLSON

NEW YORK, Dec. 23.—Prices on refinery products covering practically the entire list were unchanged over the past week. Trading was not particularly active in any product and it was apparent that the usual holiday lull in new buying was under way. Trade opinion was in agreement that prices probably would be pegged at their present levels until after the first of the year when it is believed that domestic wholesale buying of several products will improve and the export divisions also became more active.

In the retail end the gasoline market had its first important upset in several weeks when posted dealer and retail prices were reduced 3 cents in Kings County including Brooklyn on December 20. The reduction was initiated by the Socony-Vacuum Oil Co., Inc., and was immediately met by most of the other major and small distributing companies. The decrease followed an advance of .3 cents last week which placed the general New York retail market at the highest point in over three years. The Brooklyn retail price on regular grade gasoline was 19.3 cents including 4 cent state and 1 cent federal taxes before the reduction with a 15.3 cent posted dealer price.

The 3 cent reduction which may spread to other sections of Metropolitan New York reflects an unsettled situation which it is contended is local in scope. It may, however, prove to be a test as to whether the major distributors in this territory will be able to maintain the advances which were made effective the past month over the eastern part of the United States.

The trouble in Brooklyn does not originate from a weak refinery tank car market as is often the case. The 6½ cent price on middle octane, 6¾ cents on 65 octane and above and 7¼ cents, the prevailing price on the ethylized regular grades of the major companies, are being maintained in spot sales. These prices include advances of one-fourth cent effective 10 days ago and reflect a strong gasoline marketing situation so far as refinery demand and supply are concerned. It is said that the Brooklyn situation is entirely due to conditions brought about by contracts with dealers and jobbers. These dealers and jobbers in many cases have contracts with guaranteed margins. The dealer margins have been 4½ cents on exclusive contracts and jobber margins run as high as 6½ and 7 cents. These contracts are wide enough to promote price cutting on the part of some dealers and jobbers, especially with the start of the winter season when gallonage declines.

It is also said that the present trouble began when certain companies started to reduce their margins on new contracts. Many major companies feel that as conditions in the oil business improve, margins for jobbing and retailing should be reduced to bring about healthier conditions in the distributing end of the oil business. It is contended that while this may work a hardship on some distributors, those which have a legitimate place in marketing, will profit through larger volume and more stable marketing conditions. It has been indicated that dealer margins ultimately will be reduced to 3 cents per gallon. Some dealers and jobbers apparently feel that the best way to fight this possible development is to start price wars. Cases are cited in which jobbers have dropped their contracts and have bought gasoline on the open tank car market, and then sold to dealers who have cut prices.

This Brooklyn development could be dismissed as a local situation which would be ironed satisfactorily in due time, were it not for the fact that similar conditions exist in other large consuming centers. Local market observers feel that it is in the nature of a test case and similar conditions will face other sections later. Basically it has to do with the situation which developed in wholesale and retail marketing during the long period of over production in the oil industry. With an over supply of gasoline from this crude, large and small refining organizations were constantly seeking new outlets and the net results were wide guaranteed margins to both jobbers and dealers. The number of marketing outlets increased as these margins increased and brought about a situation of low gallonage per unit of distribution which in turn necessitated wider margins.

If the serious over-production has ended then it is contended the basic cause of these wide margins no longer exists and the return to narrower margins will start. It is felt that this is sound from the standpoint of the industry and certainly it is in the interest of the consumer. It has been indicated that certain jobbing and dealer interests will oppose this development, claiming that it is an effort on the part of the major oil interests to run them out of business so there will be more gallonage for their own stations. The reply of the oil companies is that the narrower margins will work to the advantage of all well managed distributing units as they will more than make up in volume what they lose in margins. From the standpoint of the oil industry the success of this movement to reduce marketing margins and costs probably will determine whether marketing is to be placed on a sound and profitable basis following the losses of the past few years.

Offsetting in part the reduction in Brooklyn prices posted dealer and service station quotations at Rochester, N.Y., were advanced 1½ cents on December 17. The new retail price is 17.5 cents ending a long period of sub-normal quotations.

Export gasoline prices at the Gulf are unchanged and not active with 5¾ cents the prevailing quotation for 375 endpoint material. Local exporters were not in agreement as to the probable result of the decision of the League of Nations committee last week not to take action in the matter of including oil in the sanctions. Some thought that this definitely means there will be no further attempts to stop the movement of oil to Italy. Others expect action after the first of the year. In the meanwhile there have been no further inquiries from Italy in this market so far as the open market is concerned. There are a few exporters at least who will be willing to quote on any Italian business offered on a cash basis. One exporter predicted there will be additional Italian business placed in January for delivery in February and later months.

Prices on furnace oils are unchanged at 4 to 5¼ cents with 5½ cents the prevailing tank car price on kerosene and range oil. Consumer buying of these products is still not as active as hoped for by sellers. Bunker C to the marine trade, continues at 95 cents with many sellers willing to predict that a 10 to 15 cent advance is just around the corner. In many cases they have been making this same prediction daily over the past month. Diesel fuel is unchanged at $1.65. There is an increasing demand for this product as there is for tank car shipments at 4¼ cents.

The lubricating oil market appears less active with prices unchanged. The export demand for Pennsylvania and western bright stocks is not as heavy as it was in October and November. The domestic demand for this product is slow. Paraffin base neutrals are unchanged.

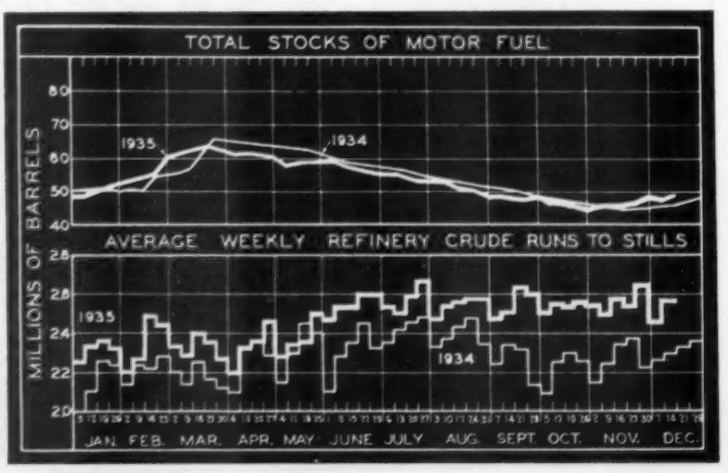
A. P. I. Weekly Refinery Statistics

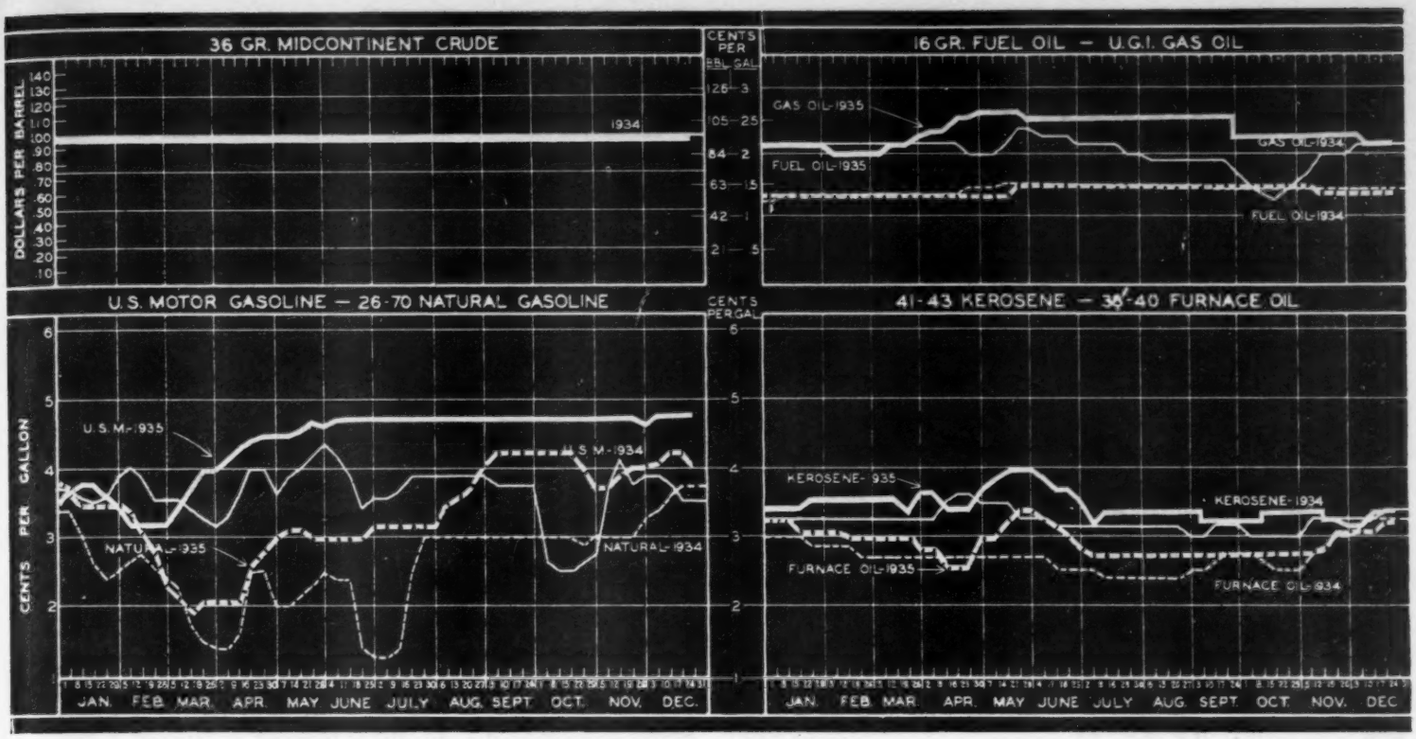
Week Ending December 14, 1935

	Capacity reporting per cent	Daily crude runs (bbls.)	Total gasoline (bbls.)	Gas oil and fuel oil (bbls.)
East Coast	100.0	460,000	13,027,000	10,522,000
Appalachian	94.8	109,000	2,140,000	921,000
Indiana, Illinois, Kentucky	95.9	356,000	8,043,000	3,383,000
Oklahoma, Kansas, Missouri	84.8	250,000	5,304,000	4,395,000
Inland Texas	48.5	88,000	1,451,000	1,645,000
Texas Gulf	96.8	570,000	6,295,000	11,077,000
Louisiana Gulf	96.4	130,000	1,339,000	4,502,000
North Louisiana and Arkansas	90.0	50,000	279,000	561,000
Rocky Mountains	61.9	33,000	902,000	744,000
California	92.6	534,000	10,832,000	66,716,000
Total United States	89.6	2,580,000	49,612,000	104,466,000

Stocks (barrels)—	Dec. 14, 1935	Dec. 15, 1934
Finished gasoline	44,218,000	41,760,000
Unfinished gasoline	5,394,000	5,047,000

NOTE: In addition to above there are stocks classified as "Stocks of other motor fuel." These stocks total around 5,500,000 bbls., but show only minor changes and are not included in this weekly summary.





Group 3 Market Listless As All Strive for Low End-of-Year Inventories

By T. F. SMILEY

The Group 3 refined oil market presented for the most part a flat and lifeless picture this week. Furnace oils and wax provided signs of animation in an otherwise monotonous scene. The trade expressed the view that business would not snap out of its lethargy till after the turn of the year.

Year-end dullness pervaded the gasoline market, largely the result of the universal desire to keep invntories low for taxation purposes. Such scattered buying as appeared grew out of day-to-day needs and the slightly increased demand for the Christmas holiday. Sales managers were looking after shipping instructions on contracts and letting it go at that. It was believed probable a little bulge in spot orders and contract movement would appear in the last few days of December, shipments to be timed so that the material would not arrive at its destination until after January 1.

Shut Down for Christmas

In addition to refineries in East Texas already shut down for repairs or until crude eligible for federal tender could be obtained several more were closed over Christmas. Notwithstanding slack demand, no accumulation of distress stocks was taking place. Truck shipments of East Texas gasoline eligible for state tenders only have declined in recent weeks as dock prices have risen, narrowing the spread between the retail price of regular house-brand motor fuel and that of third-grade material. This difference in price has been the dominant factor in keeping the sales of third-grade gasoline to a fairly high level in Texas and Oklahoma while they have been showing a marked decline in most other areas. If the spread continues to shrink, as it is expected to do with curtailed crude allowables and with high-compression cars replacing old models, demand for third-grade material is expected to diminish still further, with corresponding swelling of gallonage in regular and premium grades. There was a noticeable drop in truck sales when the pump price for third-grade gasoline went to 13 cents recently in Dallas, motorists taking regular-grade instead.

Illustrative of transformed conditions in East Texas, where formerly illicit crude was demoralizing gasoline markets east of the Rockies, independent refiners in that area for weeks have been paying a premium of 5 cents to get connections, and some now are reported to be paying 10 cents. In cases where need of the crude is especially urgent the purchaser is said to be paying the gathering charge.

Natural gasoline was weak in both Oklahoma and Texas, and tankcar prices dropped. That had been expected, for a seasonal lag ordinarily appears in December, extending through to March or April. There rarely is enough buying between December 20 and the close of the month to keep daily production cleaned up.

Uncertainty still clings to the situation in the Texas Panhandle, where casinghead plants are operating under injunctions against enforcement of a State Railroad Commission order issued under the state's natural gas conservation law. Repeated postponement of hearings of the injunction suits by a federal court preserves the fog. Feeling is growing, however, that in the end the gas wastage feature of the Texas law will be upheld and that the natural gasoline now coming out of the Panhandle will be taken out of the market.

Brisk Demand for Furnace Oil

Brisk demand for furnace oils, accompanying the advent of wintry weather in northern consuming areas, was in contrast with the slowness of most other refined oil products. Some observers say that current conditions in this division might be misleading, asserting that following a brief continuance of the good business of the moment, the market could droop as easily as it could stiffen, notwithstanding that right now it is the strongest and most active item in the list.

Absence of cracking operations is keeping the demand for gas oil down. Large quantities of this material are in storage for use next spring, refiners viewing this as a cheap method of storing potential motor fuel. Wax was in vigorous demand, but little was obtainable. Kerosene was firmer owing to the fact that many refiners now are cutting distillates instead of kerosene.

Refined Oil Market Barometer

Year-end dullness prevailed in the refined oil market in all areas. It was expected to continue till after January 1, when a pick-up was believed likely. Desire for small inventories for taxation purposes deterred buying. Furnace oil stood out as virtually the only item in active demand. Basically the general market was regarded as in healthy condition, the continued improvement in the East Texas area being particularly gratifying.

MID-CONTINENT. Gasoline slow. Natural weak. Furnace oil vigorous. Wax strong.

EAST COAST. Trading inactive. Present prices probably pegged till after turn of year.

GULF COAST. General market firm, business quiet owing to holiday lull. Prices unchanged.

PENNSYLVANIA. Market sluggish with no price changes.

CALIFORNIA. Fuel oil slightly easier. Market throughout inactive.

CHICAGO. Gasoline fairly steady. Heating oils stronger and in active demand.

RETAIL OIL MARKETS

Tank wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of December 24, 1935

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank wagon or 3 cents a gallon off retail prices is permitted for purchases between 4,000 and 10,000 gallons per month, or 4 cents a gallon off retail prices for purchases in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Chicago	14.0	16.0	4.0	9.8
Decatur, Ill.	15.5	16.5	4.0	9.8
E. St. Louis	15.2	17.2	4.0	9.5
Joliet	15.5	16.0	4.0	9.8
Peoria	15.5	15.5	4.0	9.8
Quincy	15.3	17.3	4.0	8.0
Davenport, Ia.	15.5	(†)	4.0	9.8
Des Moines	15.3	(†)	4.0	9.6
Mason City	15.7	(†)	4.0	10.0
Sioux City	15.5	(†)	4.0	9.8
Duluth, Minn.	16.3	18.3	4.0	10.6
Mankato	15.9	17.9	4.0	10.2
Minneapolis	15.9	17.9	4.0	10.2
LaCrosse, Wis.	16.9	18.9	5.0	10.2
Green Bay	17.2	19.2	5.0	10.5
Milwaukee	15.3	16.8	5.0	10.1
Madison	16.9	18.9	5.0	10.2
Detroit, Mich.	13.5	15.5	4.0	9.2
Grand Rapids	15.6	15.6	4.0	8.0
Saginaw	16.1	18.1	4.0	9.3
Evansville, Ind.	17.2	19.2	5.0	10.3
Indianapolis	17.4	19.4	5.0	10.5
South Bend	17.6	19.6	5.0	12.0
Fargo, N. Dak.	16.9	18.9	4.0	11.2
Huron, S. Dak.	17.4	19.4	5.0	8.5
Sioux Falls	16.9	18.9	5.0	10.2
Kan. City, Mo.*	14.9	16.9	4.0	7.0
Springfield	14.6	16.6	4.0	8.9
St. Louis	15.2	17.2	3.5	9.5
St. Joseph*	14.9	16.9	4.0	8.2
Wichita, Kans.	14.4	16.4	4.0	6.8
Bartlesville, Okla.	16.0	18.0	5.0	8.5

*State tax 2 cents, 1-cent city tax and 1-cent federal tax.

†Standard Oil Co. (Indiana) has leased all service stations in Iowa.

Discounts to dealers: Undivided accounts, 1½ cents on premium and regular and 2½ cents on third grade off service station prices; divided accounts one-half cent less than undivided. Discounts to dealers in metropolitan Chicago one-half cent larger than rest of Standard of Indiana territory, namely 4 cents and 3 cents on respective grades. Where prices are more than 1 cent below normal, the discounts are one-half cent less than above.

Stanolex Furnace Oil in Chicago

Effective June 27, 1935, f.o.b. Chicago tank wagon prices: Range oil, less than 100 gallons, 8.5 cents; 100-149 gallons, 7.5 cents; 150 gallons and more, 7.0 cents. No. 1 (36-40 lt. stw. zero), less than 100 gallons, 8.5 cents; 100-149 gallons, 7.5 cents; 150 gallons or more, 7.0 cents; No. 2 (30-34, stw. zero), same prices and quantities as No. 1; No. 3 (22-26, zero), less than 150 gallons, 7.2 cents; 150 gallons or more, 6.2 cents. No. 4 (12-15 zero) less than 400 gallons, 7.2 cents; 400 gallons or more, 6.2 cents. viscosity of No. 4, 75° and 100° F.: No. 5, less than 400 gallons 5½ cents; 400 gallons or more 4½ cents.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Denver, Colo.	18.0	20.0	5.0	11.0
Pueblo	18.0	20.0	5.0	13.0
Grand Junction	20.5	22.5	5.0	15.0
Casper, Wyo.	18.5	20.5	5.0	11.5
Cheyenne	18.5	20.5	5.0	13.0
Butte, Mont.	21.0	23.0	6.0	17.5
Billings	19.5	21.5	6.0	16.5
Helena	21.5	23.5	6.0	17.5
Great Falls	20.5	22.5	6.0	17.5
Salt Lake, Utah	16.0	18.0	5.0	16.0
Twin Falls, Ida.	23.0	25.0	6.0	15.0
Boise	22.5	24.5	6.0	15.0
Alb'que, N. M.	20.0	22.0	*6.5	13.0

*One-half cent city tax.

Discount to dealers with or without contract in Continental territory: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 3½ cents.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Atlanta, Ga.	21.0	23.0	7.0	*12.0
Augusta	20.5	22.5	7.0	*12.0
Macon	20.5	22.5	7.0	*13.0
Savannah	18.5	20.5	7.0	*13.0
Birm'ham, Ala.	21.5	23.5	8.0	12.0
Mobile	20.5	22.5	8.0	10.0
Montgomery	22.0	24.0	9.0	15.5
Jackson, Miss.	19.5	21.5	7.0	*11.0
Vicksburg	19.0	20.5	7.0	*12.0
Jacksonville, Fla.	19.0	21.0	8.0	10.0
Miami	19.0	21.0	8.0	12.5
Pensacola	19.75	21.0	8.0	11.5
Tampa	19.0	21.0	9.0	10.0
Lexington, Ky.	19.5	21.5	6.0	11.0
Covington	18.0	20.0	6.0	10.5
Louisville	18.5	20.5	6.0	10.0
Paducah	18.5	20.5	6.0	10.0

*Includes 1 cent state tax in addition to the state tax of 6 cents. Montgomery, Ala., has a county tax of 1 cent per gallon and a city tax of 1 cent per gallon on gasoline, and 1 cent per gallon on kerosene. Mobile and Birmingham, Ala., each have a city gasoline tax of 1 cent per gallon. Pensacola, Fla., has a city gasoline tax of 1 cent.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Dallas, Tex.	15.0	17.0	5.0	7.0
Fort Worth	15.0	17.0	5.0	7.0
Houston	16.0	18.0	5.0	8.0
San Antonio	16.0	18.0	5.0	8.0
El Paso	18.0	20.0	5.0	10.0
Muskogee, Okla.	16.0	18.0	5.0	7.0
Okla. City	16.0	18.0	5.0	8.0
Tulsa	16.0	18.0	5.0	8.0
Ft. Smith, Ark.	15.0	18.5	5.0	8.0
Little Rock	17.5	21.0	7.5	9.5
Texarkana	15.5	17.5	5.0	8.0

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Atl'tic City, N. J.	13.8	17.3	4.0	9.0
Newark	13.8	17.3	4.0	7.5
Annapolis, Md.	15.1	18.6	5.0	10.0
Baltimore	14.5	18.0	5.0	7.5
Cumberland	16.1	19.6	5.0	12.7
Wash'g'n, D. C.	12.5	16.0	3.0	9.0
Danville, Va.	16.9	20.4	6.0	12.9
Norfolk	15.4	18.9	6.0	11.3
Petersburg	16.1	19.6	6.0	11.7
Richmond	15.8	19.3	6.0	11.7
Roanoke	17.1	20.6	6.0	12.9
Charles'n, W. Va.	15.3	18.8	5.0	12.6
Parkersburg	14.6	18.1	5.0	11.2
Wheeling	15.5	19.0	5.0	12.2
Charlotte, N. C.	18.2	21.7	7.0	12.9
Hickory	18.5	22.0	7.0	13.1
Mt. Airy	18.5	22.0	7.0	13.2
Raleigh	17.9	21.4	7.0	12.7
Salisbury	18.2	21.8	7.0	13.0
Charleston, S. C.	16.5	20.0	7.0	11.3
Columbia	17.8	21.3	7.0	12.6
Spartanburg	18.2	21.7	7.0	12.9

Tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at regular price less one-half cent. Discount for kerosene, 1 cent off tank wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except in New Jersey, where no discount (if necessary) is given.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Omaha	17.9	19.9	6.0	10.1
McCook	18.6	20.6	6.0	10.8
Norfolk	18.2	20.2	6.0	10.5
North Platte	18.7	20.7	6.0	10.9
Scottsbluff	19.4	21.4	6.0	11.6

Note: Discounts to dealers; where service station gasoline prices are (maximum overall, including rent) as follows: Reliance, 2½ cents; Standard Red Crown, 3½ cents; Red Crown Ethyl, 3½ cents.

Where service station gasoline prices are below normal resellers' allowances are reduced one-half of the amount below normal, down to the following (minimum overall, including rent): Reliance, 2 cents; Standard Red Crown, 3 cents; Red Crown Ethyl, 3 cents. Discounts to consumers for tank wagon deliveries covered only by Standard Commercial Consumers Contract, effective January 1, 1935.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Ohio points	17.0	19.0	5.0	*12.5

*Includes state tax of 1 cent.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Philadelphia, Pa.	16.0	18.0	5.0	9.0
Pittsburgh	17.0	19.0	5.0	10.0
Allentown	16.5	18.5	5.0	9.0
Erie	16.0	18.0	5.0	8.0
Scranton	16.5	18.5	5.0	10.0
Altoona	17.0	19.0	5.0	9.0
Dover, Del.	16.5	18.5	5.0	10.0
Wilmington	16.0	16.0	5.0	9.0
Springf'd, Mass.	13.5	17.0	4.0	7.25
Worcester	13.5	17.0	4.0	7.5
Hartford, Conn.	13.5	17.0	4.0	6.75
New Haven	13.5	17.0	4.0	7.0
Providence, R. I.	12.5	16.0	3.0	7.0

Note—Tank wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
N. Orleans, La.	18.0	21.5	18.0	12.0
Baton Rouge	17.0	20.5	17.0	11.5
Alexandria	16.0	21.5	††8.0	10.5
Lafayette	18.5	22.0	‡‡8.0	12.5
Lake Charles	18.5	22.0	††8.0	†11.0
Shreveport	16.5	20.0	†7.0	9.0
Knoxville, Tenn.	20.5	24.0	8.0	14.0
Memphis	18.5	22.0	8.0	9.5
Chattanooga	20.0	23.5	8.0	11.5
Nashville	19.5	23.0	8.0	10.0
Bristol	18.35	21.1	8.0	14.5

*Includes city tax of 1 cent.

†Includes 1-cent parish tax. ‡Includes 2 cent parish tax.

Tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at dealer price less one-half cent.

Louisiana kerosene prices include 1-cent state tax.

New York and New England

SOCONY-VACUUM CO., INC.

	Gasoline			Kero.
	Post deal	Serv. sta.	Inc. tax	tank war
Albany, N. Y.	14.5	18.0	5.0	7.75
*Met. New York	15.55	19.8	5.0	7.25
*Br'kl'n, Queens	12.2	16.2	5.0	7.25
Buffalo	12.0	14.0	5.0	8.0
Rochester	16.5	17.5	5.0	8.0
Syracuse	15.0	18.5	5.0	8.5
Boston, Mass.	13.5	17.0	4.0	7.0
Portland, Me.	15.0	18.5	5.0	7.75
Manch'ter, N. H.	15.0	18.5	5.0	8.0
Burlington, Vt.	16.5	20.0	5.0	8.75

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
San Francisco	14.0	16.0	4.0	11.5
Los Angeles	13.5	15.5	4.0	10.5
Fresno, Calif.	14.5	16.5	4.0	9.0
Phoenix, Ariz.	18.0	20.0	6.0	‡16.0
Reno, Nev.	17.0	19.0	5.0	13.0
Portland, Ore.	16.5	18.5	6.0	13.5
Seattle, Wash.	16.5	18.5	6.0	13.5
Tacoma	16.5	18.5	6.0	13.5
Spokane	19.5	21.5	6.0	16.5

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where discount is 1 cent.

‡Includes 5-cent state tax.

Canada*

Imperial 3-Star Gasoline

IMPERIAL OIL, LTD.

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Hamilton, Ont.	21.0	23.5	6.0	16.5
Toronto, Ont.	21.0	23.5	6.0	16.5
Brandon, Man.	30.3	33.3	7.0	21.5
Winnipeg, Man.	28.7	31.7	7.0	20.3
Regina, Sask.	30.0	33.0	7.0	21.5
Saskatoon, Sask.	32.8	35.8	7.0	24.3
Edmonton, Alta.	32.2	35.2	7.0	23.7
Calgary, Alta.	29.5	32.5	7.0	21.0
Vancouver, B. C.	26.0	29.0	7.0	24.0
Montreal, Que.	20.5	23.0	6.0	17.0
St. John, N. B.	26.0	29.0	8.0	19.5
Halifax, N. S.	26.0	29.0	8.0	19.5

*Imperial gallon used in Canada.

Discount to dealers: Divided dealers pay 3 cents per gallon below station price; undivided dealers pay 4 cents per gallon below station price except in cities of Hamilton, Toronto and Montreal where discounts below station price are one-half cent per gallon less.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Retail Price Changes

Standard Oil Co. of New Jersey December 6 advanced station and tank wagon gasoline 2 cents in Richmond; December 14 advanced station and tank wagon gasoline 1 cent in Wheeling.

Imperial Oil, Ltd., December 16 reduced station gasoline 1 cent in St. John and Halifax.

Standard Oil Co. of Louisiana December 16 reduced tank wagon kerosene 1.5 cents in New Orleans; December 18 advanced tank wagon kerosene 1.5 cents in New Orleans.

Standard Oil Co. (Indiana) December 4 reduced tank wagon kerosene 2.2 cents in Huron.

Socony Vacuum Oil Co., Inc., December 17 advanced posted dealer gasoline 1 cent and station gasoline 1.5 cents in Rochester; December 20 reduced posted dealer and station gasoline 3 cents in Kings County including Brooklyn.

Standard Oil Co. of California December 23 advanced tank wagon kerosene 1.5 cents in San Francisco.

Crude Oil Price Changes

The Ashland Oil & Transportation Co., Ashland, Ky., effective December 19, ceased paying a flat price for Somerset, Kentucky, crude and posted a 7-cent increase in the Big Sandy River area, making the new price $1.20 per barrel, and a 15-cent increase in the Kentucky River area, making the new price $1.28 per barrel. The difference in price is in recognition by the buyer of the superior refining qualities of the average run of oil from the Kentucky River district. The price affects production from 7,000 oil wells. Big Sandy River district includes production in Morgan, Magoffin, Johnson, Lawrence and Elliott Counties, and the Kentucky River district lies in Estill, Lee, Owsley, Powell and Wolfe Counties, all in Kentucky, and long known as the Somerset field.

Joseph M. Erickson and Robert Huessler, Buffalo, N. Y., who are interested in a deep test in Schleicher County and have other oil interests in Texas, are spending some time at San Angelo and Fort Worth. Mr. Erickson has headquarters in San Angelo.

PRICES ON REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of December 24, 1935

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:

Below 63 octane	.04¾	.04⅞
63-70 octane	.05⅝	.05⅞
60-62 400 grade:		
Below 63 octane	.04¾	.04⅞
63-70 octane	.05⅝	.05⅞
64-66 375	.04⅞	.05
68-70 360	.05	.05⅛

NORTH TEXAS—

U. S. Motor grades:

Below 63 octane		.04¾
63-70 octane	.05⅝	.05⅞
60-62 400	.04¾	.04⅞
64-66 375	.04⅞	.05

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:

Below 63 octane	.05½
63-70 octane	.06¼
60-62 400	.05½

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:

Below 63 octane	.05½
63-70 octane	.06¼

CHICAGO (based on Group 3)—

U. S. Motor grades:

Below 63 octane	.04¾	.04⅞
63-70 octane	.05⅝	.05⅞
60-62 400	.04¾	.04⅞
64-66 375	.04⅞	.05
68-70 360	.05	.05⅛
Aviation fighting grade	.05¾	.06

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:

Below 60 octane	.05¼
60-64.9 octane	.06⅝
65-70 octane	.07
64-66 375	.05⅝
68-70 350	.05⅝

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.05	.06
58-60 400	.05¾	.06

EAST COAST—

U. S. Motor, below 60 octane:

*New York (Bayonne)	.06¼
Baltimore	.06

U. S. Motor, 60-64.9 octane:

*New York (Bayonne)	.06½
Philadelphia	.06½
Boston	.06½
Baltimore	.06¼
Charleston, S. C.	.06¼

U. S. Motor, 65 and above:

*New York (Bayonne)	.06⅝
Philadelphia	.06⅝
Boston	.06⅝
Baltimore	.06½
Charleston, S. C.	.06½

*All grades of gasoline one-fourth cent less for barge shipments. The above New York harbor prices are for New York state and New England delivery. For delivery in New Jersey and other points the prices are one-fourth cent less.

GULF COAST (domestic)—

U. S. Motor grades:

Below 60 octane	.05⅛	.05⅝
60-64.9 octane	.05⅝	.05⅝
65 octane and higher	.05⅝	.05⅝

Naphtha

PENNSYLVANIA (inland refineries)—

50-52 450 (blending)	.05⅛
52-54 450 (blending)	.05⅛
54-56 450 (blending)	.05¼

CHICAGO (based on Group 3)—

50-52 450 (blending)	.04¾	.05
Cleaners' naphtha, 56-58 gr., 200 i.b.p., 20 e.p.	.06⅛	.07
Lacquer diluent, 130 i.b.p., 250 e.p.	.07⅞	.08
Lacquer diluent, 140 i.b.p., 200 e.p.	.08⅜	.09
Rubber solvent, 68-70 gr., 100 i.b.p., 300 e.p.	.06⅝	.07
Stoddard solvent, 300 i.b.p., 410 e.p., over 83° flash	.06⅝	.06½
Pet. thinner, 200-300 i.b.p., 410 e.p., over 83° flash	.06⅜	.06½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p., 330° e.p.	.06⅜	.07
Petroleum spirits	.05⅝	.06

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70	.04
Grade 18-55	.04⅝
Low vapor pressure grade:	
*14 lb. v.p. (max.)	.05¼
*12 lb. v.p. (max.)	.05⅝

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.04¼

NORTH TEXAS—

Grade 26-70	.03⅝
Grade 18-55	.04½
*14 lb. v.p. (max.)	.05¼
*12 lb. v.p. (max.)	.05⅝

CALIFORNIA—

75-85 375-390	.04⅝	.05½

*Nominal.

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03¼	.03⅜
42-44	.03⅜	.03½

NORTH TEXAS—

41-43	.03¼	.03½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04¼

PENNSYLVANIA (inland refineries)—

45	.04¾
46	.04⅞
47	.05

CHICAGO (based on Group 3)—

41-43	.03½	.03½
42-44	.03½	.03⅝

CALIFORNIA (Pac. Coast market)—

28-40 high burning test	.04	.05

NEW YORK (Bayonne, N. J.)—

*41-43	.05¼

GULF COAST (domestic)—

41-43	.04¼	.04½

*Barge price one-eighth cent lower.

Petroleum Coke

(Prices per ton f.o.b. Chicago area. Refineries absorb freight to 80 cents a ton.)

Pile run	6.25
Direct from still	7.25
Egg, nut, pea	8.00
Lump	8.75

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.03¼	.03⅝
No. 1 straw, 38-40	.03⅛	.03¼
No. 2 straw, 32-36	.03	.03⅛
No. 2 dark, 32-36	.02⅞	.03
No. 3, 28-32	.02⅝	.02⅞
No. 3, 15 and above, 28-32	.02½	.02⅝

NORTH TEXAS—

No. 1 prime white, 38-42	.03⅛	.03⅝
No. 1 straw, 38-40	.03⅛	.03¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03⅛	.03¼

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36	.03½
No. 3, 28-32	.03¼

CHICAGO (based on Group 3)—

No. 1 prime white, 38-40	.03¼	.03½
No. 1 straw, 38-40	.03⅛	.03⅜
No. 2 straw, 32-36	.03⅛	.03⅜
No. 2 dark, 32-36	.03	.03⅛
No. 3, zero to 15, 28-32	.02⅞	.03
No. 3, 15 and above, 28-32	.02¼	.02½

NEW YORK (Bayonne, N. J.)—

*No. 1	.05¾
*No. 2	.04¼
*No. 4	.04

*Barge deliveries one-eighth to one-fourth cent under above tank car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅛	.02¼
No. 4, 24-28	.87½	.90
No. , 15 and above, 24-28	.75	.80
No. 5	.70	.75
No. 6	.65	.67½
Below 18 fuel oil, industrial	.60	.65

NORTH TEXAS—

U.G.I. gas oil	.02⅛	.02¼
No. 4, 24-28	.87½	.90
No. 5	.70	.75
No. 6	.65	.67½
Below 18 fuel oil, industrial	.60	.65

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U.G.I. gas oil	.02⅞	.03
10-14 fuel oil, industrial	.75	.80

ARKANSAS (Ark., N. La., Miss. del.)—

10-14 fuel oil, industrial	.60	.65

CHICAGO (based on Group 3)—

U.G.I. gas oil	.02¼	.02⅝
No. 4, 24-28	.87½	.90
No. 4, 15 and above, 24-28	.72½	.77½
No. 5, 18-22	.62½	.67½
No. 6, 10-15	.52½	.57½

Fuel oils of more than 40 cold test generally 5 to 15 cents per bbl. in these areas.

PENNSYLVANIA (inland refineries)—

36-40	.04¼	.04¼

CALIFORNIA—

Los Angeles:

30-34 gas oil, per bbl.	1.10	1.25
27 plus diesel	1.10	1.25
27 plus diesel (bunkers)	1.25	1.30
12-16 (bunkers at tidewater)	.87	.95
10-16 (cargo lots)	.80	.90
12-17 (tank cars)	.60	.95
San Joaquin Valley:		
10-18 (tank cars)	.60	.75
San Francisco:		
27 plus diesel, per bbl.		1.25
27 plus diesel (bunkers)		1.35
10-16 (bunkers)		1.00

GULF COAST—

28-30 gas oil		.03¼
28-30 diesel (bunkers)		1.70
Bunker C (bulk cargoes)	.70	.75
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil	.04	.04¼
28-30 diesel (lighterage 6¼ plus per bbl.)		1.65
28-30 diesel (tank cars)		.04¼
*Bunker C (to ocean-going ships in N. Y. harbor)		.95
Industrial fuel (tank cars)		.03⅞

*Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:

190-200 D, 15-25		.20
150-160 D, 0-10		.17
150-160 D, 15-25		.16½
150-160 E, 15-25		.16
100-110 D, 0-10		.15⅝

Steam refined:

630 green (treated)		.09½
600 light green, untreated		.08½

PENNSYLVANIA—

600 dark green, untreated	.05	.06

Bright Stocks (Pennsylvania grade, No. 8 color, 145-50 at 510; 540-550 flash):

10 pour test	.22	.22½
15 pour test	.21	.21½
20 pour test	.20	.20½
25 pour test	.19	.19½

Steam refined:

600	.09½	.10
650	.11	.11½
600 Pennsylvania flash	.12	.12½
630 flash	.17	.17½
600 Warren E filtered	.13	.13½

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:

150-3	.10
180-3	.11¼
180-4	.10¾
200-3	.11¾
200-4	.11¼
250-3	.13¾
250-4	.13¼
280-3	.14⅝
280-4	.14
300-3½	.15¼
400-3½	.16
100-2 paraffin oil	.05¾

15-20 Cold Test:

200-3	.10⅜
200-4	.10¼
240-3	.12⅜
240-4	.12⅛
280-3	.13⅜
280-4	.13

GULF COAST—

Pale Oils:

200-3	.07	.07½
300-3	.07½	.08
500-3½	.08½	.09
750-3½	.09	.09¼
1,200-3½	.09½	.09⅝
2,000-4	.09⅝	.10

Red Oils:

200-5-6	.07	.07¼
300-5-6	.07¼	.07½
500-5-6	.08	.08⅛
750	.08⅛	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)

Pale Oils:

100-2½-3	.06⅝	.07
200-2½-3	.07¼	.07½
300-3-3½	.09	.09⅜
400-3-4	.09½	.09⅝
450-3-4	.09⅝	.10
550-3-4	.10	.10¼
600-3-4	.10¼	.10½

Red Oils:

200-4-5	.06⅝	.07
300-5-6	.07¼	.07½
350-5-6	.07¼	.07⅝
400-5-6	.07⅝	.08
450-5-6	.08	.08¼
500-5-6	.08¼	.08½
600-5-6½	.08¼	.08⅝
700-6½ plus	.08⅝	.09
750-6½ plus	.09	.09½
900-6½ plus	.10	.10⅝

PENNSYLVANIA—

150 vis. at 70° F., color, 400-405 flash:

Zero pour test	.21	.21½
10 pour test	.20	.20½
15 pour test	.19½	.20
25 pour test	.18½	.19

180 vis. at 70° F., 3 color:

25 pour test	.21	.21½

200 vis. at 70° F., 3 color:

Zero pour test	.25½	.26
10 pour test	.24½	.25
15 pour test	.24	.24½
25 pour test	.23	.23½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02⅝	.02½

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0235	.0240
124-126 (a.m.p.) w.c. scale	.0235	.0240

NEW YORK—

Wax in bags fully refined:

123-125 (a.m.p.) wax		.0420
125-127 (a.m.p.) wax		.0430
128-130 (a.m.p.) wax		.0455
130-132 (a.m.p.) wax		.0480
133-135 (a.m.p.) wax		.0510
135-137 (a.m.p.) wax		.0565
124-126 (a.m.p.) w.s.		.0225
124-126 (a.m.p.) y.s.	.0220	.0225

Petrolatum in barrels, carload lots:

Dark green		.01⅞
Amber	.02⅜	.03
Extra amber	.03	.03⅛
Lily white	.06⅜	.06⅝
Snow white	.07⅜	.07⅝
Cream	.05⅝	.05⅝

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05¼	.05⅜
60-62 400		.05½
61-63 390		.05⅝
64-66 375	.05⅝	.05¾

LOS ANGELES—

U. S. Motor grades:

53-55 octane		.04
55-65 octane	0.4	.04¼
65-67 octane	.04¼	.04½
67-69 octane	.04½	.04¾
Above 69 octane	.04¾	.05
58-60 400 endpoint	.04¾	.05¼

KEROSENE

GULF COAST—

41-43 prime white		.03¾
41-43 water white	.03¾	.04
44 water white		.04¼

LOS ANGELES—

41-43 water white	.04¼	.04¾

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbls.)—

Cylinder Stocks:

600 Warren E	.19½	.20
600 S.R. unfiltered		.16½
650 S.R. unfiltered	.17½	.18
600 flash S.R.	.18½	.19
630 flash S.R.	.23	.24

Bright Stocks:

8 color	.26	.26½
6½ plus color in dilution		.25½

NEUTRAL OIL

200-3 color	.29½
150-3 color	.25

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 a.m.p.	.035	.03625
125-127 a.m.p.	.03625	.0375
128-130 a.m.p.	.03875	.0400
130-132 a.m.p.	.04125	.04250
133-135 a.m.p.	.04625	.04750
135-137 a.m.p.	.04875	.0500

Crude scale:

124-126 w.s.	.0220	.0225
124-126 y.s.		.0220

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

Corsicana (heavy) (June 17, 1933)	.80
East Texas	$1.00
Other fields	(See gravity table)

West Texas

Crane Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933)	$ .70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933)	.75
Pecos County, Yates shallow Pool (Sept. 29, 1933)*	.65
Jones and Fisher Counties*	(See gravity table)

Rocky Mountain States

Ilas, light, (Sept. 29, 1933)	$ .96
Ilas, heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1932)	.90
Fort Collins and Wellington, Colo., (June 17)	(See Salt Creek prices)
Big Muddy (Sept. 29, 1933)	1.01
Frannie, light (May 1, 1934)	.70
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 29, 1933)	(See Stanolind Mid-Continent price schedule.)
Grass Creek, light (Sept. 29, 1933)	$1.13
Grass Creek, heavy (Sept. 29, 1933)	.62
Elk Basin (Sept. 29, 1933)	1.13
Kock Creek (Sept. 29, 1933)	1.02
Lance Creek (Dec. 16, 1932)	.92
Hudson (June 2, 1931)	.95
Lost Soldier (Sept. 30, 1933)	.88
Hamilton Dome, all grades (Feb. 16, 1935)	.57
Torchlight (Sept. 29, 1933)	1.13
Greybull (Sept. 29, 1933)	1.13
Pondera (Sept. 29, 1932)	1.25
Sunburst (July 19, 1935)	1.20
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Dec. 1, 1933)	.75

Gulf Coast

Grade A and Grade B specification discontinued by leading buyers. (See gravity table)

Hardin (Aug. 8, 1935)	$ .93
Tomball (see note)*	1.15
Livingston (Sept. 29, 1933)†	1.00
Cleveland (Jan. 11, 1934)	1.00
Gretz (June 29, 1935)	.80
Refugio, light	(See gravity table)
Refugio, heavy (June 29, 1935)‡	.80
Conroe	(See Conroe gravity table)
Markham and High Island	(See Gulf Coast gravity table)
Bosco, La. (Jan. 18, 1935)§	.90

Anahuac and Dickinson posted by Humble August 20, 1935, price of 94 cents per barrel on 36-36.9 gravity with 2 cents per degree increase with top 40 gravity $1.14.

Note — Tomball, effective September 29, by Humble Oil & Refining Co. and October 2 by Magnolia Petroleum Co., and November 10 by Stanolind Crude Oil Purchasing Co.

*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy by Humble Oil & Refining Co. Cleveland and Hardin posted by Magnolia Petroleum Co. §Bosco posted by Pure Oil Co.

Middle Western States

OHIO OIL CO.

Luna (Feb. 1, 1935)	$1.15
Illinois (Jan. 5, 1934)	1.13
Princeton, Ind. (Jan. 5, 1934)	1.13
Plymouth	Shut in
Midland, Mich. (Dec. 15, 1935)*	1.22
West Branch, Mich. (Nov. 7, 1935)	.86
Muskegon, Mich.	1.00
Ogemaw, Mich.	.96
Eastern Kentucky:	
Big Sandy River (Dec. 19, 1935)	1.20
Kentucky River (Dec. 19, 1935)	1.25
Western Kentucky (May 22, 1935)	1.13

*Posted by Pure Oil Co., Simrall Pipe Line Co. Ogemaw and West Branch, Mich., by Simrall Pipe Line Co., Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades)	$ .70
Tullos, Urania, La. (Jan. 12, 1934)	.87
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Converse, La. (Mar. 17, 1934)	1.03
Elm Grove, La. (Sept. 29, 1933)	.75
Holly, La. (Nov. 17, 1934)	1.03
Pleasant Hill, La. (Mar. 17, 1934)	1.03
Zwolle, La. (Mar. 17, 1934)	1.03
Champagnolle, Ark. (Mar. 17, 1934)	.81
Lisbon, Ark. (Mar. 17, 1934)	1.03
Stephens, Ark. (Sept. 29, 1933)	.70
Urbana, Ark. (Mar. 17, 1934)	.60
Other fields	(See gravity table)

Eastern States

TIDE WATER PIPE CO.
(Effective Nov. 20, 1935)

Bradford, Pa.	$2.30
Allegany, N. Y.	2.30

SOUTH PENN OIL CO.
(Effective Nov. 20, 1935)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	$2.30
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.02
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.97
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.82
Corning Grade Oil in Buckeye Pipe Line Co.'s lines	1.82

PENNZOIL CO.
(Effective Nov. 20, 1935)

Pennsylvania Grade Oil in National Transit Lines:	
Group A — Includes Cochran, Franklin, Hamilton and Doolittle districts.	$2.27
Group B — Includes Titusville district.	2.24
Group C — Includes Turkey and Tidioute districts.	2.36
Group D — Includes Bear Creek and Porkey districts.	2.24
Group E — Includes Eidenean, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emienton, Tiona, Lacey and Kinsua districts.	2.21

Price depends on length of pipe line haul to plant at Oil City.

PURE OIL CO.
(Effective Nov. 20, 1935)

Cabin Creek, W. Va.	$1.97
Bradford Hollow, W. Va.	1.97
Kelly Creek, W. Va.	1.97

South Central and Southwest Texas

Darst Creek	$ .87
Mirando (June 29, 1935)	.75
Luling (Sept. 29, 1933)	.75
Pettus	1.05
Salt Flat	.87
Lytton Springs (Sept. 29, 1933)	.95
Duval County (June 29, 1935)	.75
Saxet (June 29, 1935)	.80
Port Lavaca (July 1, 1935)	.80

Canada

Ontario (Sept. 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (May 21, 1934):†	
Clear naphtha	2.55
Discolored naphtha	2.37
Crude oil, 50 gravity	2.19
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$ .85

*F.o.b. ship, based on October transactions and exclusive of production and export taxes and bar dues.

Crude Prices by Gravities

Gravity—	1 Oklahoma and Kansas	2 North Texas, Central Texas and East Central Texas	3 North Louisiana and Arkansas	4 Gray County, Texas	5 Carson, Hutchinson and Moore Counties, Texas	6 Conroe, Texas	7 Salt Creek, Wyo.	8 Gulf Coast, Texas and Louisiana	9 Gulf Coast, Texas and Louisiana	10 Cotton Valley, Louisiana
Below 20	....	....	....	....	....	....	....	$.82	$.82	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.74
27-27.9	* 82	....	....	....	....	....	....	.98	.98	.76
28-28.9	* 84	....	....	....	....	....	....	1.00	1.00	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.12	1.14	1.02

Belridge Prices

Associated Oil Co. posted higher prices in the Belridge field in California, effective December 6, as follows: 14 to 18.9 degrees, 65 cents; 19 degrees, 68 cents; 20 degrees, 71 cents; 21 degrees, 73 cents; 22 degrees, 75 cents; 23 degrees, 77 cents; 24 degrees, 80 cents; 25 degrees, 82 cents; 26 degrees, 85 cents; 27 degrees, 88 cents; 28 degrees, 90 cents; 29 degrees, 92 cents; 30 degrees, 94 cents; 31 degrees, 95 cents; 32 degrees, 96 cents; 33 degrees, 97 cents; 34 degrees, 98 cents; 35 degrees, 99 cents; 36 degrees, $1.01; 37 degrees and over $1.03.

Rex Davis, production foreman, in the Cumarebo field in Venezuela, is spending Christmas at his home in Madison, Kan.

STANDARD OIL CO. OF CALIFORNIA

Effective December 6, 1935, and met by all other purchasers. (Ventura Avenue posted by Associated Oil Co.; Rincon by General Petroleum Corp.) All gravities above those posted take highest posted price in the field.

Gravity—	Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda-Brea Canon	Athens Rosecrans Dominguez	Elwood Terrace	Torrance	Richfield	Kettleman Hills	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River Round Mountain	Mountain View	Midway-Sunset Elk Hills Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge	Ventura Avenue	Rincon
14-14.9	$.75	$.74	$.73	$.74	$.75	$.71	....	....	$.75	$.71	....	$.71	$.72	$.73	....	$.65	....	$.65	$.65	$.65	....	....	....
15-15.9	.75	.74	.73	.74	.75	.71	....	....	.75	.71	....	.71	.72	.73	....	.65	....	.65	.65	.65	....	....	....
16-16.9	.75	.74	.73	.74	.75	.71	....	....	.75	.71	....	.71	.72	.73	....	.65	....	.65	.65	.65	....	....	....
17-17.9	.75	.74	.73	.74	.75	.71	....	....	.75	.71	....	.71	.72	.73	....	.65	....	.65	.65	.65	....	....	....
18-18.9	.75	.74	.73	.74	.75	.73	....	....	.75	.71	....	.71	.72	.73	....	.65	....	.65	.65	.65	....	....	....
19-19.9	.75	.74	.74	.77	.76	.75	....	....	.77	.73	....	.71	.72	.73	....	.65	$.65	.66	.68	.66	$.65	....	....
20-20.9	.76	.74	.76	.79	.79	.77	....	....	.78	.71	....	.73	.72	.73	....	....	.65	.68	.71	.67	.65	....	....
21-21.9	.78	.74	.78	.81	.81	.79	....	....	.80	.71	....	.75	.72	.75	$.73	....	.65	.71	.73	.69	.65	....	....
22-22.9	.80	.74	.80	.82	.84	.81	....	....	.81	.73	....	.77	.72	.77	.73	....	.66	.74	.75	.71	.67	.73	.69
23-23.9	.82	.77	.82	.84	.86	.83	$.79	....	.83	.75	....	.79	.74	.79	.73	....	.67	.77	.77	.73	.69	.75	.71
24-24.9	.84	.80	.84	.86	.88	.84	.81	....	.84	.77	....	.80	.76	.81	.75	....	.69	.80	.80	.75	.71	.77	.73
25-25.9	.86	.82	.86	.87	.91	.86	.82	....	.86	.79	....	....	.78	.82	.77	....	.71	.83	.82	.77	.73	.79	.75
26-26.9	.88	.85	.88	.89	.93	.88	.86	....	.88	.81	....	....	.80	.84	.79	....	.73	.86	.85	....	....	.81	.77
27-27.9	.90	.88	.90	.91	....	.90	.88	....	....	.83	....	....	.82	.86	.82	....	.76	.88	.88	....	....	.83	.79
28-28.9	.92	.90	.91	.92	....	.92	.90	....	....	.85	....	....	.83	.88	.84	....	.78	.91	.90	....	....	.85	.81
29-29.9	.94	.93	.93	.94	....	....	.93	....	....	.87	....	....	.85	.90	.86	....	.80	.94	.92	....	....	.87	.83
30-30.9	.96	.95	.95	.95	....	....	.95	....	....	....	....	....	.87	.92	.89	....	.83	.97	.94	....	....	.89	.85
31-31.9	....	....	....	.97	....	....	.97	....	....	....	....	....	.89	.94	.91	....	.85	.99	....	....	....	....	....
32-32.9	....	....	....	.99	....	....	1.00	....	....	....	....	....	.91	.96	.93	....	.87	1.02	....	....	....	....	....
33-33.9	....	....	....	....	....	....	....	$.99	....	....	$.95	....	.93	.98	.95	....	.89	1.04	....	....	....	....	....
34-34.9	....	....	....	....	....	....	....	1.01	....	....	.97	....	.95	1.00	.98	....	.91	....	....	....	....	....	....
35-35.9	....	....	....	....	....	....	....	1.03	....	....	.99	....	.97	....	1.00	....	....	....	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	1.05	....	....	1.03	....	.99	....	1.02	....	....	....	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	1.07	....	....	1.05	....	1.00	....	1.04	....	....	....	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	1.08	....	1.03	....	1.07	....	....	....	....	....	....	....	....
39-39.9	....	....	....	....	....	....	....	....	....	....	1.11	....	1.05	....	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	....	....	....	....	....	....	....	....	....	1.07	....	....	....	....	....	....	....	....	....	....

Playa Del Rey prices f.o.b. their pipe line. Elwood Terrace prices f.o.b. ship.

Market Record of Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1935 High	1935 Low	Week ended Dec. 21 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends Paid in 1934	1934 High	1934 Low	1933 High	1933 Low
78	48½	3,800	78	73¼	78	Amerada Corp.	788,675	N.P.	50cQ	10-31-35	$2.00	55⅝	39	47⅝	18½
28	20½	32,500	27⅛	26	27	Atlantic Refining	2,664,904	$25	25cQ	12-16-35	1.00	35¼	21½	32½	12⅝
14½	5⅞	45,000	14½	13¼	14½	Barnsdall Corp. A	2,195,397	$5	15cQ†	2-1-36	....	10	5⅜	11	3
15¾	3⅜	28,900	13½	12⅝	13	Columbia Gas & Elec.	11,610,036	N.P.	20c	11-15-35	‡ .25	19¼	6⅝	28⅛	9
11⅛	6½	86,400	11⅛	10⅝	11⅛	Consolidated Oil Corp.	13,996,072	N.P.	14c	10-31-34	.42	14¼	7¼	15¾	5
32⅛	15⅛	76,900	32⅛	29½	32	Continental Oil of Delaware	4,682,722	$5	25c	1-31-36	.50	22¾	15¾	19⅝	4⅞
22½	11¾	4,300	21⅞	20¾	21⅝	General Asphalt	387,149	$10	25c	12-17-35	....	23½	12	27	4⅝
7	1½	6,800	6½	6¼	6½	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	5⅝	2½	7⅜	1⅞
18½	9½	12,800	18¼	16⅞	18¼	Mid-Continent Petroleum	1,857,912	$10	25c	12-2-35	.50	14⅞	9⅛	16	3¾
20⅞	9	2,000	18½	17¾	17¾	National Supply of Delaware	382,591	$25	....	5-15-31	....	21⅛	10	28⅝	4
14⅛	9¼	47,100	13¼	12½	13¼	Ohio Oil Co.	6,563,377	N.P.	15cSA	12-14-35	.45	15⅞	8½	17⅝	4¾
11½	6¾	11,500	11½	10	11½	Pacific Western Oil	1,000,000	N.P.	40c	11-30-34	.40	9⅜	5½	9½	3
1⅞	½	800	1½	1½	1½	Panhandle P. & R.	198,770	N.P.	....	.....	....	2½	⅝	4¼	⅜
37⅝	13¾	25,000	37⅜	36⅛	36⅞	Phillips Petroleum	4,154,687	N.P.	25c†	11-30-35	1.00	20¾	13⅜	18¾	4¾
12¼	6½	10,700	12⅛	11¾	12	Plymouth Oil Co.	1,050,000	$5	25c	3-30-35	75c & 4% Stk.	16¾	7¼	17⅝	6⅜
16¼	5⅞	43,600	16	15½	16	Pure Oil Co.	3,038,370	N.P.	....	9-1-30	....	14⅞	6⅛	15⅜	2½
48⅜	29½	700	46⅜	45¾	46¼	Royal Dutch N. Y. shares	fl. 503,642,000	fl. 100	$1.70	8-1-35	1.35	39½	28⅝	39⅜	17⅝
35⅞	20¾	18,800	34	30⅝	33½	Seaboard Oil of Delaware	1,244,283	N.P.	15cQ†	12-14-35	1.00	38⅜	20¾	43⅜	15
16½	5½	18,600	15⅝	14⅝	15⅝	Shell Union Oil	13,070,625	N.P.	....	6-30-30	....	11½	6	11⅝	4
111	63⅛	900	109¼	108	108½	Shell Union Oil pfd.	400,000	$100	....	7-1-31	....	89	57	61	28½
18¾	4¾	6,200	5⅛	5	5	Simms Petroleum	461,698	$10	1.25 liq.	10-18-35	.55	17⅛	7¼	12⅜	4⅞
19⅛	6½	15,400	19⅛	16¾	19	Skelly Oil	1,008,514	$25	....	12-15-30	....	11½	6	9⅞	3
15¾	10⅝	74,300	14¼	13⅜	14¼	Socony-Vacuum	31,154,379	$25	15cQ	9-16-35	.60	19⅞	12½	17	6
38⅞	27¾	28,400	37⅝	36⅝	37¼	Standard Oil of California	13,102,900	N.P.	25c	12-15-35	1.00	42⅞	26½	45	19½
31⅛	23	44,300	31⅛	29½	31	Standard Oil (Indiana)	15,215,677	$25	25cQ	12-16-35	1.00	32¾	23¼	34	17
32	20	200	27½	26½	26½	Standard Oil of Kansas	200,000	$10	50cQ	10-31-34	2.00	41	26	39⅞	12¾
50½	35¾	35,900	49⅛	48⅛	48¾	Standard Oil of New Jersey	25,856,081	$25	50cSA†‖	12-16-35	1.25	50⅛	39¼	47½	22¾
77	60½	4,100	71	69½	71	Sun Oil	1,733,013	N.P.	25c¶	12-16-35	$1 & 9% Stk.	74¼	51½	59	35
28¼	16½	79,000	28¼	26¼	28⅛	Texas Corp.	9,486,417	$25	25cQ	1-1-36	1.00	29⅜	19⅝	30⅛	10¾
9¼	3¼	5,800	8	7⅝	8	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	....	6½	2½	6½	1⅝
13¾	7⅝	38,800	14¼	12½	14¼	Tide Water Associated	5,631,341	N.P.	25c	1-15-36	....	14⅝	8	11⅜	3⅛
104¼	84	1,100	102½	100½	100½	Tide Water Associated pfd.	666,524	$100	$3§	1-2-36	§8.50	87	64½	65¼	23½
22⅜	14¾	6,400	22⅜	21½	22	Union Oil of California	4,386,070	$25	25cQ	11-9-35	1.00	20½	11½	23⅜	8½
26½	20¼	2,600	23⅜	22	22	Union Tank Car Co.	1,200,000	N.P.	30cQ	12-2-35	1.20	25¾	15⅝	22¾	10½
3⅛	1	700	3	2⅝	2⅝	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	5¾	2	5½	2

*Ex-dividend. †Plus extras. ‡Payable in preferred stock. §On account of accumulation. ‖Dividend 4/75 Mission Corp. paid 3-15-35. ¶and 7 per cent stock.

Market Record of Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1935 High	1935 Low	Week ended Dec. 21 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends Paid in 1934	1934 High	1934 Low	1933 High	1933 Low
13¼	3⅝	2,900	12⅞	12	12¼	Bridgeport Machine Co.	150,000	N.P.	....	5-1-30	....	3⅜	½	1½	¼
42½	30½	No sales ..	..	..	..	Buckeye Pipe Line Co.	200,000	$50	75cQ	12-14-35	$3.00	38	26	29¾	25
4¼	1⅝	4,000	2⅞	2⅝	2⅝	Carib Syndicate	799,020	25c	....	.....	....	5½	1½	7¾	⅛
157	115	No sales ..	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1Q†	12-27-35	11.50	150	116	129	71
3¼	⅜	78,300	2⅜	2⅜	2⅜	Cities Service	37,804,394	N.P.	....	6-1-32	....	4¼	1¼	6¼	1½
2⅛	½	14,500	1⅛	⅞	1⅛	Colon Oil	2,200,000	N.P.	....	.....	....	3¼	½	4	¼
1½	¼	6,100	1¼	⅝	1⅛	Cosden Oil	399,687	$1	....	.....	....	3⅞	½	3⅞	1⅝
23¾	10	43,700	22	19⅛	19⅜	Creole Petroleum	6,974,356	$5	....	.....	....	14⅜	9⅝	12	4⅜
8⅛	4	1,900	8⅝	7¾	8⅝	Darby Petroleum	509,696	$5	25cSA	1-15-36	.50	7½	4⅛	8	2⅛
2	¾	200	1⅜	1⅜	1⅜	Derby Oil & Refining	263,162	N.P.	....	.....	....	2¼	1	2¾	⅞
38	34	No sales ..	..	..	..	Eureka Pipe Line	50,000	$50	$1Q	8-1-35	4.00	37	30	41¾	20
74¾	50¼	15,300	73¼	70⅛	72	Gulf Oil Corp.	4,538,101	$25	....	10-1-31	....	76¾	49¾	62	24
64	44	19,700	61¼	59⅞	60⅞	Humble Oil & Refining (new)	8,923,935	N.P.	25cQ	10-1-35	$1.25	49½	33¼	105½	40
22½	15⅜	13,200	20½	19⅝	19⅝	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	12-2-35	.92½	17⅞	12⅝	15⅞	6½
6⅛	3⅝	800	5½	5⅛	5⅛	Indiana Pipe Line	300,000	$10	15cSA†	11-15-35	.35	6⅞	3⅝	8	3⅛
39¾	28	13,800	35¾	33⅝	34	International Petroleum	14,247,088	N.P.	$1.25†‡	12-2-35	2.28	33⅜	19⅜	23½	8⅞
11¾	4⅜	11,600	10⅜	9⅜	10⅛	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	....	5	2⅛	2¼	⅝
8¼	3½	500	7¼	7	7¼	Lion Oil Refining	270,000	N.P.	....	10-27-30	....	6	3⅜	9½	1¼
10⅞	4½	2,700	9⅞	9½	9¾	Lone Star Gas	5,382,723	N.P.	20cSA	1-15-36	‖ .16	8⅜	4¼	11⅞	4¾
5¾	4⅛	2,700	5⅜	5	5	Mountain Producers	1,682,182	$10	30cSA	12-31-35	.60	5½	4	6½	2½
20	11⅜	3,000	19⅜	18¼	18⅞	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-36	1.00	18⅛	13⅛	20	10
10½	6¼	1,500	9⅞	9⅜	9¾	National Transit	509,000	$12.50	35cSA	12-16-35	.75	9½	7	10	5½
3¼	2	300	3	2¾	3	New Bradford Oil	1,445,202	$5	10cSA	9-16-35	.20	2½	1¾	2⅛	½
2½	1	600	2	1⅞	2	New Mexico and Arizona	1,000,000	$1	....	.....	....	2¾	1	1⅜	½
4⅞	3	1,500	4⅝	4⅛	4⅛	New York Transit	100,000	$5	15cSA	4-15-35	.30	4¾	3	4⅞	3
8	5¼	100	7⅜	7⅜	7⅜	Northern Pipe Line	120,000	$10	25cSA	2-2-36	.50	7	4⅝	6⅛	4¼
4⅜	1¼	48,000	4	3	3¼	Pantapec Oil	1,608,700	N.P.	....	.....	....	2⅝	⅞	3¾	½
2½	⅝	1,000	2⅛	2	2	Ryan Consolidated	296,931	N.P.	....	.. ...	....	3⅜	⅞	4¼	⅝
7½	5½	900	7	6¾	6⅞	Salt Creek Producers	1,496,859	$10	40cSA	12-31-35	.80	7⅞	5½	9¼	3½
32½	21⅝	1,700	32¼	31⅝	32	South Penn Oil	1,200,000	$25	30cQ	9-30-35	1.20	26½	17½	22⅛	11
5	3⅞	1,400	4⅜	4¼	4⅜	Southern Pipe Line	100,000	$10	15cSA	9-3-35	.25	5½	3½	6	2⅛
56	44¼	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q†	12-31-35	5.00	47	41	43	24½
24	18	1,700	21½	21⅛	21⅛	Standard Oil of Kentucky	2,604,790	$10	25cQ†	12-14-35	1.50	18⅞	14⅝	19¼	8⅝
12	7¾	300	11⅜	11⅝	11⅝	Standard Oil of Nebraska	188,403	$25	....	6-20-34	.50	16⅞	8¼	20½	11
23⅝	11½	1,700	22¼	21⅛	21⅛	Standard Oil of Ohio	753,740	$25	....	1-3-33	....	28½	12¼	41	15½
2⅞	⅞	8,900	2½	2¼	2⅜	Sunray Oil	1,610,810	$1	....	4-15-31	....	2	⅛	1½	¼
4¾	2½	15,100	4⅝	4⅛	4⅝	Texas Gulf Producing Co.	888,041	N.P.	....	12-29-34	10% Stk.	7	3⅜	6½	3¾
6⅞	5	800	5⅞	5¾	5⅞	Texon Oil & Land	336,028	N.P.	15c	12-30-35	.90	11	4⅜	13¾	6¼

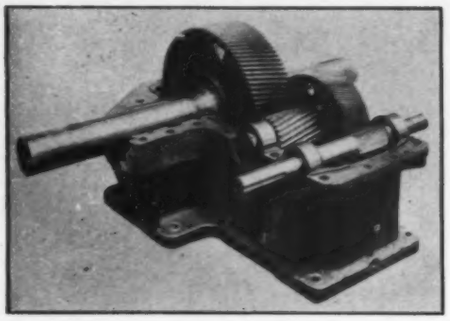
*Ex-dividend. †Includes extras. ‡Payable in Canadian funds. §Includes 50 cents on old $25 par value stock. ‖Payable in preferred stock.

Note.—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

NEW OR IMPROVED EQUIPMENT

New Line of Pumping Units Is Composite of Field Ideas

A new line of IXL oil-well pumping units, consisting of three single-reduction and five double-reduction units, is announced by Foote Brothers Gear & Machine Co., 5301 South Western Boulevard, Chicago. The series is the outgrowth of surveys of Texas and Oklahoma oil fields, and the new units are said to be a composite of ideas obtained from engineers and operating executives. Features of the units enumerated by the manufacturer include:



(1) Slow-speed end of unit symmetrical about the center line of slow-speed gear. (2) All shafts held to shortest length to minimize deflection and bending moments. (3) Oil leakproof retainer shields prevent water, dust and grit working into bearing from the outside. (4) All bearings on high and intermediate shafts are deep-groove double-row ball bearings and are interchangeable. All slow-speed bearings are split bronze, babbit-lined, in interchangeable sections. Ample bearing capacity provides for all thrust and radial loads and insures full life hours and service. (5) All gears are helical type with low helix angles and heat-treated to 280 Brinell on pinions and 240 Brinell on gears. (6) A machined leveling plate on top of each reducer and four leveling screws in base are provided for leveling and aligning unit. (7) Ten large foundation holes and crowbar slots in the base as well as four eyebolts on top facilitate handling and installing. (8) Heavy ribbing of case at points of stress is provided to resist deflection and reduce wear of gears and bearings. (9) Positive splash lubrication with oil slinger and oil troughs leading to all bearings.

The Frick-Reid Supply Corp., warehousing distributor for the Middle West oil fields, and the Republic Supply Co. of Los Angeles, distributor for California, have arranged for stocking of the gear units in all important oil centers.

Here and There With Men Who Manufacture Equipment

Earle W. McMullen has been made director of research of the Eagle-Picher Lead Co. This position formerly was held by Dr. John A. Schaeffer, who resigned to become president of Franklin and Marshall College.

The Eastern Steam Specialty Co., Inc., 125 Barclay Street, New York, has been named New York representative for McAlear Manufacturing Co., Chicago, maker of automatic valves, pressure and level control specialties.

Caterpillar Tractor Co., Peoria, Ill., has granted a franchise to Machinery & Welder Corp., 240 South Boyle Avenue, St. Louis, Mo., for sales of electric welding units mounted on Caterpillar tractors in Illinois, Missouri, Kansas, eastern Iowa, southern Wisconsin, northwestern Indiana and the upper peninsula of Michigan.

Lucey Boiler & Manufacturing Corp., Chattanooga, Tenn., has appointed W. S. Bassett manufacturer's representative in Houston, Tex.

Appointment of T. T. Johnson as sales metallurgist for Republic Steel Corp., pig iron division, has been announced. He will serve in the Birmingham, Ala., district.

G. G. Van Tuyl, 18927 Winslow Road, Cleveland, Ohio, has been made representative in the Cleveland district for Pennsylvania Pump & Compressor Co., Easton, Pa.

Houston Oil Field Material Co., Houston, Tex., has opened a field store in Victoria, Southwest Texas, to which stocks formerly carried in the Port Lavaca store have been moved. Herman J. Moon, veteran Homco sales and service man, is in charge of the Victoria store.

The Gates Rubber Co., Denver, Colo., is now carrying a stock of Gates Vulco ropes in Tulsa at 7 West Haskell Street. T. D. Williamson is district representative.

Well Equipment Co., Inc., Houston, Tex., appointed Rob Chapman as Weco sales representative in the Rodessa, La., territory. Mr. Chapman formerly worked in the field for Wilson Supply Co.

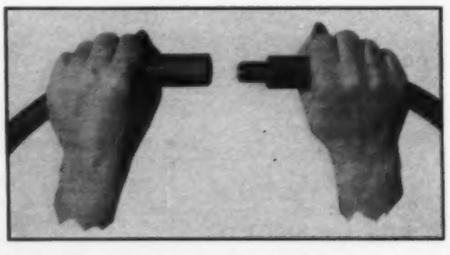
Fred E. Cooper, Fred E. Cooper Co., Tulsa, has opened a sales office for tractors at 1532 Cloverdale Avenue, Los Angeles, Calif., with H. R. "Ray" Moon in charge.

George R. Woods, 17 Battery Place, New York, has been made American representative for the chrome hardening processes of Ingenieursbureau "Lemet Chromium," Hilversum, Holland.

The A. M. Lockett & Co., Ltd., New Orleans, La., has appointed O. E. Berg special representative on seamless tubular products manufactured by the Babcock & Wilcox Tube Co. Mr. Berg's headquarters will be in Houston, Tex.

Quickly Detachable Connector Put on Market by Lincoln

A new type of quickly detachable connector, designed for use in connecting welding or electrode cable, is announced by the Lincoln Electric Co., Cleveland, Ohio. It locks in position and cannot work loose or be pulled apart accidentally.



This new connector provides a quick method of connecting cables. Its operation is so simple that connection can be made in the dark. The plug is inserted in the jack and a twist of the wrist locks the connection. To disconnect, the procedure is reversed. Protection against grounding is assured by fiber insulating sleeves.

Large Volumes of Oxygen Are Delivered at High Pressure

The Air Reduction Co., Lincoln Building, New York, announces a heavy-duty type two-stage reduction regulator, Airco-DB style 8490, primarily designed to deliver large volumes of oxygen at relatively high pressures such as may be encountered on heavy cutting, deseaming jobs, furnace tapping and in similar operations. It finds its use principally where the oxygen demand is greater than can be handled by the conventional regulator, or where close pressure regulation and a low endpoint desired. A further and important use of the regulator arises in cases where precise pressure regulation with medium flows is involved.

The maximum operating pressure is 200 pounds per square inch. The maximum delivery capacity is on the order of 3,000 cubic feet per hour, provided the delivery pressure is 100 pounds or greater. The pressure regulation furnished by the regulator is practically independent of the rate of flow from full cylinder pressure down to the regulation endpoint.

Marking a departure from conventional design, this regulator uses the Airco "feed-back" principle. The low-pressure cavity is connected to the space in back of the first-stage diaphragm by the passage through the control tube on the back of the regulator. The first-stage spring maintains a certain difference in pressure between the first and second stages, in much the same manner as in the usual two-stage welding regulator, although the pressure difference varies in the latter for different operating pressures. However, whenever the adjusting-screw is turned in, and pressure developed in the low-pressure cavity, the same pressure will be developed in back of the first-stage diaphragm. This pressure augments the effect of the control-spring thrust so that the first-stage pressure increases by a degree equal to the operating pressure.

The difference between the first- and second-stage pressures is always maintained substantially constant, with the difference equal to the first-stage pressure when the adjusting-screw is entirely released.

Sticks to Galvanized Iron

With the development of Lithoform by American Chemical Paint Co., Ambler, Pa., the problem of making paint stick to galvanized iron and galvanneal is said to have been solved. When surfaces are treated with this new chemical they will "take" paint perfectly, the company says. The coating provided by Lithoform, it is said, will not wash off, chip or corrode, and it is not affected by baking temperatures.

"Workshop" Lathe Announced

The 1936 model 9-inch "Workshop" precision lathe is announced by the South Bend Lathe Works, South Bend, Ind. The lathe features 10 improvements, among which are a simplified twin-

gear reverse for cutting right- and left-hand screw threads of 4 to 40 per inch, a countershaft of either the double friction type or the horizontal type with either the plain or adjustable belt tension, an improved back-geared headstock with larger spindle bearings and a new ball-bearing thrust collar on the spindle, a new and heavier saddle, and a simplified gearing for threads and speeds. The lathe has a strong, rigid bed of a one-piece casting with 50 per cent steel and 50 per cent nickel iron composition, and comes in lengths of 3, 3½, 4 and 4½ feet, with distances between centers of 17, 23, 29 and 35 inches, respectively.

New Device for Straightening Kelly Announced by Baker

A portable, hydraulically operated device for straightening a kelly or drill pipe has been announced by Baker Oil Tools, Inc., of Los Angeles, Calif. Easily transported to the derrick floor, it is asserted this straightener will take out kinks or

bends while the kelly remains in its normal operating position suspended in the derrick. It eliminates the necessity of laying down the kelly with the risk of further bending and removes the possibility of kinking the kelly while transporting it to or from the shop or dragging it into the rig.

The hydraulic ram exerts a pressure of 78 tons, and functions equally well in any position. Minimum time is required for the straightening operation, so that shutdown time is much less than that involved when the kelly must be transported to and from a shop.

Bulletins, Booklets and Other Literature for the Trade

"Painting in Cold Water," is the subject of a helpful article by James Valk in the latest issue of Dutch Boy Painter, published by National Lead Co., 111 Broadway, New York.

A new bulletin on Yarway all-steel cylinder-guided expansion joints is announced by Yarnall-Waring Co., Chestnut Hill, Philadelphia, Pa.

Details concerning a new Monobloc centrifugal pump, type DH, for hot-well service and for pumping volatile liquids against medium heads, including ratings, heads, dimensions, etc., are contained in bulletin W-321-B8, obtainable from Worthington Pump & Machinery Corp., Harrison, N. J. The company also offers new bulletins on Worthington Multi-v-drives and horizontal duplex piston pumps.

Insulating materials, refractories, flooring, roofings and transite in its various forms are among products described in a catalog of industrial products just published by Johns-Manville, 22 East Fortieth Street, New York.

Spang, Chalfant & Co., Inc., Pittsburgh, Pa., is sending to its clients and to others who ask for it a data sheet presenting a curve showing stretch of casing, tubing or drill pipe suspended freely in various flotants, without float-plug.

The current number of Lux-Rich Reports, always attractive, contains articles of special interest to the oil man. This 8-page publication is produced by Walter Kidde & Co., Bloomfield, N. J., makers of the Lux extinguisher for oil and electrical fires.

A folder issued by the Brown Instrument Co., Philadelphia, Pa., illustrates and describes Brown air-operated controllers for measuring and controlling temperatures, pressures and liquid levels.

Among interesting articles in the latest number of Oxy-Acetylene Tips, published by the Linde Air Products Co., 205 East Forty-second Street, New York, are one on making welding repairs on mudhogs in the field and one on how an old jail became a garage by the use of oxy-acetylene blowpipes.

The Lufkin Line for the fourth quarter of 1935 devotes a much larger amount of space to interesting magazine material than it does to presentation of Lufkin pumping units manufactured by Lufkin Foundry & Machine Co., Lufkin, Tex.

National Establishes Plant to Make Its New Line of Rods

The National Supply Co. introduced a new line of integral upset end sucker rods made to A.P.I. specifications in box-and-pin and double-pin types. In the development of these rods National conducted laboratory and field tests in an effort to determine the proper materials for sucker-rods to meet any pumping condition. These tests are reported to have indicated clearly to the company's engineering staff the necessity of producing five grades of sucker-rods to meet the varying operating conditions and to combat corrosive conditions existing in many fields.

Five grades were developed, as follows: Grade 30 is an improved carbon rod of strength and ductility designed for service in light to medium-heavy wells where the fluids are noncorrosive and sulfides are light. Grade 40 is a medium manganese rod of somewhat greater strength than 30, for medium-heavy wells with noncorrosive fluids and light sulfides. Grade 50 is a high manganese, high-strength rod intended for the heaviest loads in noncorrosive and nonsulfide fluids. Grade 80 is a medium nickel molybdenum alloy designed to handle

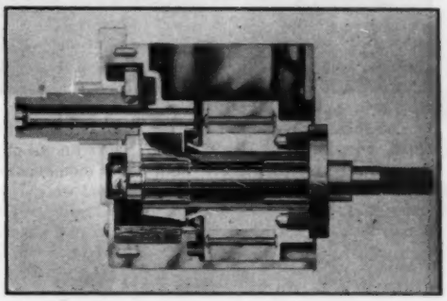
medium-heavy loads in badly corrosive and medium sulfide fluids. Grade 90 is a high nickel alloy, recommended for heavy loads in badly corrosive and heavy sulfide wells.

To manufacture this line of rods a new plant has been established in Carnegie, Pa., equipped with modern machinery and furnaces. All equipment is new and especially designed for the single purpose of making National sucker-rods. Bulletin No. 82 describes this new line of rods and illustrates in detail the various steps in their manufacture.

Working Parts of Newest Wico Magneto Easily Accessible

Wico Electric Co., Springfield, Mass., has added to its line of magnetos, the series AP Wico, adaptable for use on engines of one, two, three, four and six cylinders. The series AP is said to be unusually accessible as to working parts.

High cobalt magnets, die-cast in the rotor, with silicon sheet-steel laminations, provide for an incoming spark of high intensity and aid easy start-

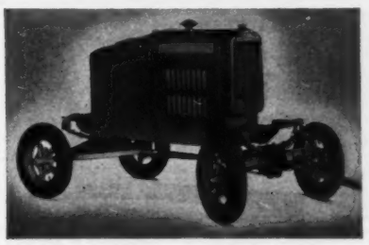


ing. Die-castings, drop-forgings and Chapmanized bearing surfaces make for compactness, strength, ruggedness and a reduction in weight of magneto. Circulating oil lubrication with needle bearings permits higher speeds if required and ample safety factor. A speed of 6,500 r.p.m. has been maintained for more than 2,100 hours, a performance considered impossible a few years ago.

The well-balanced electrical circuit, mechanical design and efficient lubrication not only promise long periods of satisfactory magneto performance, but tend to prolong the life of spark-plug electrodes, as the relationship between milliamps and volts is said to have been correctly established in the design of coil, condenser and magnetic field.

Adams Arc Welding Machine Driven by Gasoline Engine

A portable gasoline engine-driven arc welding machine of interest to the oil and gas industry is announced by J. D. Adams Co., Indianapolis, Ind. Since the widespread adoption of the electric welding process in the fabrication of materials and equipment used in the oil and gas industry, espe-



cially on pipe line work, engine-driven arc welders find extensive use in the field and plant work where electric current is not readily available.

A feature of the Adams welder is the remote control of the engine. A switch located in the handle of the electrode holder enables the operator to start and stop the machine from working position at will, thus eliminating engine idling time and reducing engine wear and operating costs. The machine is mounted on a welded steel skid and can be mounted on a steel trailer with rubber tires as illustrated.

New Universal Floodlights

New Universal floodlights with permanent reflectors for installation where the cost of standard enclosed floodlights is not justified are announced by Westinghouse Electric & Manufacturing Co. They are also desirable where a reasonable amount of beam control is necessary and where light weight is advantageous. The units are suitable particularly for general construction and emergency work, small service stations, etc. They are available in two sizes, one for 300 or 500 watt lamps and one for 750 or 1,000 watt.

The formal opening of the Fred E. Cooper plant, Tulsa, was held on December 17, with an all-day open house at which more than 1,500 members of the oil industry were present. The picture shows some of the members of the Allis-Chalmers organization who attended. Reading from left to right: E. L. Kirkpatrick, branch manager, Wichita, Kans.; Fred E. Cooper, oil field representative of the tractor division; A. G. Bailey, sales manager, Rocky Mountain, Mid-Continent and Gulf Coast divisions, for Fred E. Cooper; H. C. Merritt, general manager, tractor division, Allis-Chalmers: D. M. McCarger, district manager, electrical division, Allis-Chalmers; E. C. Hulse, industrial manager, Allis-Chalmers, Wichita, Kans. The new plant of Fred E. Cooper is the world's largest organization devoted exclusively to the sales and manufacture of oil field pulling equipment.

Oil Man's Calendar

January

7-9—Milwaukee, Wis., Wisconsin Petroleum Association, Plankinton Hotel.

13-14—Fargo, N. Dak., Northwest Petroleum Association, North Dakota division, Waldorf Hotel.

13-17—Detroit, Mich., Society of Automotive Engineers, annual meeting, Book-Cadillac Hotel.

16-17—St. Paul, Minn., Northwest Petroleum Association, Minnesota division, Ryan Hotel.

20-24—Cleveland, Ohio, American Road Builders Association, annual meeting and road show.

February

5-6—Louisville, Ky., Kentucky Petroleum Marketers Association, tenth annual meeting, Brown Hotel.

25-27—Columbus, Ohio, Ohio Petroleum Marketers annual convention and marketing exposition, Deshler-Wallick Hotel.

March

4—Pittsburgh, Pa., American Society for Testing Materials, regional meeting, Wm. Penn Hotel.

11-12—Boston, Mass., Oil Men's Association of New England.

19-21—Tulsa, American Association of Petroleum Geologists, twenty-first annual meeting.

April

11-13—Tulsa, Petroleum Industry Electrical Association.

14-18—Detroit, Mich., National Oil Burner Show, Oil Burner Institute.

16-18—Cleveland, Ohio, National Petroleum Association, semiannual meeting, Cleveland Hotel.

20-25—Houston, Tex., Oil Equipment and Engineering Exposition.

May

—Dallas, Tex., annual meeting, Natural Gas Department, A.G.A.

13-15—Tulsa, mid-year meeting, American Petroleum Institute, Mayo Hotel.

13-15—Tulsa, Natural Gasoline Association of America, fifteenth annual convention, Hotel Tulsa.

16-23—Tulsa, International Petroleum Exposition and Congress.

June

18-19—State College, Pa., annual meeting, Pennsylvania Crude Oil Association.

CLASSIFIED ADVERTISING

Patent Attorneys

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form:
"Evidence of Conception."
Instructions "How to Establish Your Rights" and complete information FREE!
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418 Bowen Building,
Washington, D. C.

Financing

PROSPECTUSES prepared and deals shaped up for registration or exemption under Federal Security Act. Fee basis. John Morris, Seventh Floor, 1237 Market St., Philadelphia, Pa.

OIL AND MINING Companies organized and financed. Moderate charges. JAMES B. MURROW, 299 Broadway, New York.

JAMES E. MILLER, 604 W. Seventh St., Tulsa, Okla., will aid in financial marketing problems. Fee basis.

Business Opportunities

GEOLOGIST desires connection on percentage basis plus expenses. Highest credentials. Address Box G-823, The Oil and Gas Journal, 415 Lexington Avenue, New York City.

REAL Opportunity for Salesmen-Brokers-Wholesale-Retail. Address Earnhardt & Davis 1211 Santa Fe Bldg., Dallas, Tex.

Incorporations

DELAWARE CHARTERS—Fee small; submitted forms. Chas. G. Guyer, 901 Market Street, Wilmington, Del.

CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

Maps

NEW UP-TO-DATE LEASE and fee ownership maps; Yoakum, Terry, Cochran, Gaines counties, Tex. ZINGERY OIL MAP CO., Fort Worth, Texas.

Leases—Production

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	1 time	$5.00
1 Inch	13 times	4.50 per inch
1 Inch	26 times	4.00 per inch
1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY

CLASSIFIED RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line. PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30
4 Lines	1.40	2.40	3.40	4.40
5 Lines	1.75	3.00	4.25	5.50
6 Lines	2.10	3.60	5.10	6.60
7 Lines	$2.45	$4.20	$5.95	$7.70
8 Lines	2.80	4.80	6.80	8.80
9 Lines	3.15	5.40	7.65	9.90
10 Lines	3.50	6.00	8.50	11.00

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

Royalties—Production

NEW MEXICO—My weekly scout report furnishes complete and reliable information on New Mexico developments. Send for copy. W. S. Patterson, Santa Fe, New Mexico.

NEW LEASE 70 ac. 18-6N-2W and 100 ac. 11-6N-3W, McClain County, Okla. Joe P. Crawford, fee owner, Oklahoma City, Oklahoma.

LEASES and Royalties near drilling wells. $10.00 per acre and up. Write or wire G. E. Fisher & Co., 518 Key Building, Oklahoma City, Oklahoma.

FOR SALE—40,000 acres, oil leases in Kit Carson, Cheyenne and Kiowa Counties, Colo., 10 yr. leases 25c per acre rental, rentals paid for 1 yr. I furnish leases anywhere in Colo. or Kans. A. P. Tone Wilson, Burlington, Colo.

Reading these columns regularly is a profitable habit—cultivate it.

TO PROVE our claim, after many years of experience, that we can locate oil, gas and minerals, we will go anywhere in the United States or Canada for expenses — Plus interest. We indicate number of pay sands and approximate depths. Physico Research Corp., 503 Cuyahoga Building, Cleveland, Ohio.

WANTED
Capital to further develop proven oil lease in shallow sand district Western Kentucky. Four wells 20 bbls. production. My proposition will interest you. Joel Bailey, 309 Mercantile Building, Evansville, Indiana.

BROKERS-Salesmen-Agents. Write for our new oil investment proposition. The best one yet. Address Earnhardt & Davis, 1211 Santa Fe Building, Dallas, Texas.